DOCUMENT RESUME

ED 246 997 PS 014 395

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TITLE Income Verification Pilot Project (IVPP): School Year 1981-82 In-House Audit Findings. Revised.
INSTITUTION Applied Management Sciences, Inc., Silver Spring, Md.
SPONS AGENCY Food and Nutrition Service (DOA), Washington, DC. Office of Analysis and Evaluation.
PUB DATE Apr 83
CONTRACT 53-3198-153
NOTE 97p.; For related documents, see PS 014 394-397.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC04 Plus Postage.
DESCRIPTORS Elementary Secondary Education; *Eligibility; *Family Income; *Family Size; Federal Programs; *Food Service; Parent Attitudes; *Quality Control; Research Methodology; School Activities; Statistical Analysis
IDENTIFIERS Application Forms; Income Verification; Omnibus Budget Reconciliation Act 1981; *Quality Assurance; *School Nutrition Programs

ABSTRACT

This report addresses issues related to the extent and nature of misreporting of income and family size on applications for government-sponsored school meal benefits. Findings are reported from 741 in-home audits conducted with school meal program participants in nine school food authorities. In-home audits, which consisted of personal interviews combined with income documentation reviews, were conducted as part of the Income Verification Pilot Project (IVPP), a congressionally mandated study intended to design and test methods of preventing and detecting misreporting on school meal benefit applications. Specifically, chapter 1 provides a brief overview of the IVPP and the present report. Chapter 2 describes the in-home audit sample and procedures, defines key variables, and outlines the analytical strengths and limitations of the sample. Chapter 3 briefly describes the sample in terms of subjects' household characteristics and rates of program participation. Chapter 4 describes program applicants' reactions to a new application form that asked for considerably more information than was collected prior to the 1981-82 school year. Chapter 5 reviews findings from the income determination section of the in-home audit, and chapter 6 discusses findings concerning the extent and nature of misreporting. Chapter 7 explores the topic of income change and its effect on program eligibility. New, application-based, error-prone profiles developed for the school meal program are presented in chapter 8. Finally, chapter 9 offers a brief summary and statement of conclusions. Related materials are appended. (RH)

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INCOME VERIFICATION PILOT PROJECT (IVPP)

SCHOOL YEAR 1981-82 IN-HOME AUDIT FINDINGS

Revised
April 1983

Submitted to:

Office of Analysis and Evaluation
Food and Nutrition Service
U.S. Department of Agriculture

Submitted by:

Applied Management Sciences, Inc.

PS 014395

This report was prepared pursuant to Contract No. 53-3198-153 with the Office of Analysis and Evaluation, Food and Nutrition Services, U.S. Department of Agriculture. However, the content does not necessarily reflect the position of that agency, and no official endorsement of these materials should be inferred.

This report was written by Daniel Finnegan with major contributions by Steven Gale, Government Project Officer, JoAnn Kuchak, Project Director, and Joseph Casey, Deputy Project Director.

EXECUTIVE SUMMARY

This report addresses issues related to the extent and nature of misreporting of income and family size information on school meal benefit applications. The report presents findings from 741 in-home audits conducted with school meal program participants in nine school food authorities (SFAs). In-home audits are personal interviews combined with income documentation reviews. The in-home audits were conducted as part of the Income Verification Pilot Project (IVPP), a Congressionally-mandated study intended to design and test methods of preventing and detecting misreporting on school meal benefit applications.

A 1980 study by USDA's Office of the Inspector General estimated the extent and costs of misreporting. The study, however, did not address who misreports, what income sources they misreport, and why they misreport. The IVPP is the first major effort to determine the origin and nature of misreporting on school meal benefit applications.

The analysis of the in-home audit data was intended to respond to the following objectives:

1. Determine the characteristics of applicants who misreport information on school meal benefit applications and reasons for misreporting.
2. Determine the effects of income and family size change on program eligibility.
3. Develop and validate error-prone profiles that identify applicants who are likely to receive excess benefits.

The sample of SFAs from which in-home audits was drawn was not nationally representative, and therefore findings from the audits are not statistically generalizable to the nation as a whole. However, because all principal determinants of misreporting held true in all nine sampled SFAs, there is good reason to believe that they will also hold true in many other SFAs in the nation. Principal findings were:

- Misreported Income. Seventeen and one-half percent of sampled households were receiving benefits in excess of those to which they were legally entitled because of misreporting on meal benefit applications of household size or income. The problem of awarding excess benefits to households on the basis of erroneous information reported on meal benefit applications was primarily a problem of misreported income, not household size.

- Wages. Underreporting of wages and pensions accounted for 93 percent of excess benefits awarded, with wage income underreporting alone accounting for 84 percent.

- Employed Adults. Households receiving excess benefits are characterized by having one or more employed adults. (Applications did not however, ask for adult employment status.)

- Other Program Participation. Households not receiving excess benefits are characterized by participation in other federal low-income assistance programs such as food stamps, AFDC, General Assistance, Unemployment Compensation, and Low-Income Energy Assistance.

- Eligibility Changes. During the course of the school year the eligibility status of 18 percent of the sample changed. Seven percent experienced an increase in eligibility and 11 percent experienced a decrease in eligibility.[1] These changes in eligibility status were almost exclusively related to changes in income rather than to changes in family size. Increases in wage income were the primary determinant of decreases in eligibility status. Income increases of less than $100 a month had a low probability of reducing program eligibility.

- High Risk Applications. Error-prone profiles were developed using a simple method of scoring applicants on whether the household receives food stamps and whether the reported income is near the eligibility cut-off points. The profiles are an efficient method of selecting applications for verification that have a high probability of receiving excess benefits. Applications selected by profiles for verification have four times the likelihood of containing an error resulting in the award of excess benefits as applications selected at random.

These findings collectively suggest that quality assurance procedures to prevent fraud and abuse in the school meal program must include a strong emphasis on preventing and detecting the underreporting of wage income. In the 1982-1983 school year, FNS is testing a variety of methods of accomplishing this goal, including computer tape matches with state wage files, requiring applicants to provide supporting documentation at the time of application, requiring applicants to submit supporting documentation following application, and local third-party verification of income.

END NOTES

[1] The term "increased eligibility" refers to a change in eligibility that increases benefits, such as a change from reduced-price to free meal eligibility. The term "reduced eligibility" refers to a change in income or family size that would reduce the level of benefits to which a household is entitled.

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1

OVERVIEW

This report addresses issues related to the extent and nature of misreporting of income and family size information on school meal benefit applications. The report is based on findings from in-home audits of 741 households participating in the school meal program during the 1981-1982 school year. The in-home audits were conducted as part of the Income Verification Pilot Project (IVPP), a Congressionally-mandated[1] study intended to design and test methods of preventing and detecting misreporting on school meal benefit applications.

A clear understanding of the nature of the problem of misreporting is a prerequisite to an effective remedy. This report is one of several produced by IVPP to promote such an understanding. An earlier report, "Findings on School Meal Program Participation," provided preliminary indications of the impact of Congressionally-mandated changes in the school meal application process and of the effectiveness of two experimental quality assurance procedures.[2]

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[1] PL 97-35.

[2] Applied Management Sciences, December 1982.

2

METHODOLOGICAL ISSUES

This section describes the in-home audit sample and procedures, defines key variables, and outlines the analytic strengths and limitations of the in-home audit sample.

Sample

SFAs from which the in-home audit sample was drawn volunteered to participate in the study. They were not chosen in a way that would assure representativeness of the universe of SFAs. Exhibit 2.1 lists the SFAs from which the in-home audit sample was drawn. Within the selected SFAs, the 54 elementary schools (six per SFA) from which the in-home audit sample was drawn were selected on the basis of judgements of FNS and local school district authorities.

Within the selected schools, the sampling unit was defined as a recipient student for whom a completed application for school meal benefits in the 1981-1982 school year had been approved before November 12, 1981. The applications in each selected school were stratified by grade level of student for whom the application was made and by reported family size. A fixed primary sample of 15 applications per school was drawn together with a matched replacement sample of 15 applications per school. The replacement sample was matched by school, grade level, and family size to the primary sample. The resulting sample was not self-weighting for purposes of generalization to the total population of participating households in the selected schools. Applicant households with multiple children applying for benefits in a school had a proportionally higher probability of selection than applicant households with only one child in the school. Further, applicant households in schools with low numbers of applications had a proportionally

EXHIBIT 2.1: CHARACTERISTICS OF IN-HOME AUDIT PHASE I SCHOOL FOOD AUTHORITIES

SCHOOL FOOD AUTHORITY	URBAN/RURAL LOCATION	FNS REGION [1]	ENROLLMENT SIZE (1978-79) [2]	PERCENT MINORITY ENROLLMENT (1978-79) [2]	LOCUS OF ELIGIBILITY DETERMINATION [3]
Palm Beach, FLA	Urban	Southeast	70,723	36	Decentralized (School)
Lake County, FLA	Rural	Southeast	17,621	22	Decentralized (School)
Collier County, FLA	Rural	Southeast	13,797	26	Decentralized (School)
Duval County, FLA	Urban	Southeast	105,973	36	Decentralized (School)
Syracuse, NY	Urban	Northeast	22,749	36	Centralized (SFA)
Utica, NY	Urban	Northeast	11,076	20	Centralized (SFA)
Lawrence, KS	Rural	Mountain Plains	7,346	13	Decentralized (School)
Akron, OH	Urban	Midwest	42,917	34	Decentralized (School)
Portland, ME	Urban	Northeast	9,901	2	Centralized (SFA)

1/ There are seven FNS regions responsible for providing technical assistance to state agencies, monitoring the state agencies, and administering programs in private schools where state laws prohibit the state from doing so.

2/ Source: Office for Civil Rights, U.S. Department of Health and Human Services, 1980

3/ The locus of eligibility determination refers to a place in the organizational structure of a school district that the application is reviewed and certified for free meals or reduced price meals or denied as ineligible.

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higher probability of selection than applicant households in schools with high numbers of applications. Although the sample is not self-weighting, the probability of selection is known for all applicants sampled; these known probabilities were employed to develop sample weights that allow generalization to participating schools. The in-home audit results can, therefore, be statistically generalized to the schools from which the sample was drawn. The sample cannot be statistically generalized to participating SFAs or the nation as a whole.

Data Collection

In-home audits are personal interviews combined with income documentation reviews. The in-home audits were used to validate information contained on school meal benefit applications. The in-home audits were conducted in the program recipients' homes by professional interviewers who had experience in conducting income studies. Scheduling was at the respondents' convenience.

To help ensure a high response rate, a variety of data collection steps were taken. First, each respondent received an introductory letter requesting an interview and explaining the study. The letter was designed to acquaint respondents with the significance of the study, to assure them that confidentiality would be maintained, and to inform them that their participation in the school meal programs would not be adversely affected by participation in the study. Accompanying this letter was a list of income-related documents that the respondent needed to show the interviewer during the in-home audit. Appendix C shows the letter and document list.

Applicants were then contacted by telephone to schedule appointments for personal in-home interviews. Because an inability to reach an applicant is generally a function of the time when the contact is attempted, up to three attempts were made to contact respondents on different days of the week and at different times of the day. When contact was made, an appointment was scheduled and the respondent was provided with the telephone number of the local survey field office in case the appointment time had to be changed. Also, the respondent was reminded of the importance of having the income-related documents ready for this visit. On the day of the appointment, the interviewer called to confirm the visit or reschedule the appointment if necessary.

In cases where contact by telephone was not possible, the interviewer made one visit to the respondent's home to arrange for the interview. A copy of the letter sent to the applicant and a request that this respondent call the local survey field office were left at the respondent's home in the event that he or she was not at home.

A second set of follow-up procedures was used to convert applicant refusals. Local survey field office supervisors were notified in all cases in which an interviewer's efforts to schedule an appointment resulted in a refusal. A refusal information form was then completed. This form provided information regarding the circumstances and nature of the refusal and details of all attempts to contact and elicit the participation of the respondent. This detailed information was reviewed by a member of the senior project staff who determined how to recontact the individual most effectively and gain the respondent's cooperation.

Depending on the specific situation, the refusing respondent was sent a personalized letter from a senior project official emphasizing the importance of cooperation. Or a contact was made by telephone to determine the reason for the initial refusal and to complete the interview. All sampled applicants who could not be located or refused to cooperate were replaced by other applicants from the same school, matched by grade level and family size. This matched replacement method was employed to minimize response bias.

Survey Yield

The survey resulted in 741 completed in-home audits. Seventy-three sampled households refused to cooperate. In addition, 509 sampled households could not be located. The high number of households who could not be located was due, in large part, to the fact that the in-home audits were conducted in late May and June and that a high percentage of the sample households were families in Florida who had left for migratory farm work. Among families successfully contacted, the response rate was 91 percent. Of the final sample of 741 completed in-home audits 69 percent were in the original sample and 31 percent were replacements.

Response refusals and nonlocatable households could potentially bias final survey results. For example, if individuals who had significantly

underreported their income had a higher than average refusal rate and if this fact was not detected and corrected for, the survey would underestimate income underreporting. Two steps were taken to detect response bias. First, information contained on school meal benefit applications was compared for respondents, refusals, and cannot-locates to detect any systematic pattern of nonresponse. No systematic differences were discovered between respondents and cannot-locates on reported total income, sources of income, family size, or completeness of application.

A comparison of refusals and respondents showed no systematic differences in reported family size, sources of income reported on the application, or completeness of application. However, refusals had a higher average reported monthly income than respondents. This difference raised the possibility of response bias. To explore this possibility further and make necessary corrections, a second analysis was undertaken.

Using data from completed in-home audits, a model was developed in which application information predicted which applicants underreported their income or family size to receive benefits in excess of their true eligibility. This model was then applied to application data from audit refusals to estimate the percentage of refusals receiving excess benefits. Comparison of the estimated excess benefit rates for respondents and refusals was used to estimate refusal rates for those receiving excess benefits and those not receiving excess benefits. (The mathematical details of the analysis are presented in Appendix A.) This analysis found an estimated refusal rate of 6.5 percent for households who were not receiving excess benefits, 14.5 percent refusal for households who were eligible for reduced-price but were receiving free-meal benefits, and 26 percent refusal for households who were ineligible for meal benefits but were receiving reduced-price or free-meal benefits. Therefore, nonresponse could have downwardly biased the estimates of misreporting. However, these results were used to weight the data and thereby partially correct for response bias. All analyses were run using both weighted and unweighted data. With the exception of the total estimated percentage of the population receiving excess benefits, the weighting procedures did not materially affect any substantive findings reported below. This report uses weighted data throughout to allow generalization to the sampled schools and to reduce refusal bias.

Data Collected by the In-Home Audit

During the in-home audits, information on income and family size contained on meal benefit applications was validated. When discrepancies were found between the information on the application and the validation, the interviewer asked the applicant to explain how the discrepancy occurred. In addition, the in-home audit gathered a range of information on family characteristics and program participation necessary to discover correlates of misreporting. The in-home audit covered the following topics:

- reactions to the new application form;
- participation in the free and reduced-price meal program;
- household composition;
- participation in low income assistance programs;
- family income in the month of the in-home audit and the month of the application;
- reasons for discrepancies between income reported on the application and income measured during the in-home audit.

Recent evidence from the Census Bureau's Survey of Income and Program Participation suggests that a primary source of interview refusal on federal government-sponsored income surveys is concern with privacy.[1] To assure respondents of privacy, a confidentiality/ honesty agreement between the interviewer and respondent was used.

The respondent signed a statement that said, "I understand that the information from this interview must be very accurate in order to be useful. This means that I must do my best to give accurate and complete answers. I agree to do this." In turn, the interviewer signed a statement that said, "All information that would permit identification of the people being interviewed as part of this study will be held in strict confidence. No information that would allow identification will be disclosed or released to others for any purpose." Past research has shown such a joint agreement significantly increases the amount and quality of information obtained by personal interviews.[2] A total of 96 percent of all respondents signed the agreement.

During the course of the interview, respondents were asked to supply documentary evidence (such as check stubs, program eligibility certificates, etc.) for every source of income previously reported. This documentation

was used to validate the income they reported on the meal benefit application form. Sixty percent of the respondents were able to supply at least partial documentation of their reported income. Forty percent of the respondents did not or were unable to supply documentation.

Definition of Key Variables

The primary focus of this report is misreporting of income and family size information on school meal benefit applications. Misreporting, however, is not a single discrete entity but a continuum. For example, during the in-home audit, 75 percent of respondents reported income that varied to some degree from the income they reported on their school meal benefit application. In this sense, it is possible to say that 75 percent of all applicants misreported their income. However, many of the discrepancies discovered proved to be trivial. If misreporting of income was defined as "a discovered discrepancy of $25 a month or more," the misreporting rate would drop from 75 percent to 62 percent.

Although the dollar amount of misreporting is of interest, it is not the central interest. Income and family size information is collected on school meal benefit applications for purposes of determining program eligibility. Therefore, misreporting of income or family size information is most important where it affects program eligibility. Consequently, this report places primary emphasis on misreporting that results in the applicant receiving inappropriate or excess program benefits.

Receipt of "inappropriate program benefits" was measured by comparing program eligibility status based on information contained on the school meal benefit application with program eligibility status based on income and family size data for the same month derived from the in-home audit. Program eligibility was determined using standard tables issued by FNS. Exhibit 2.2 presents the eligibility guidelines then in effect.

Based on FNS regulations then in effect and reviewed by FNS officials for purposes of determining eligibility, counted family income included:

- wages, salaries, tips, commissions, and income from self-employment;

EXHIBIT 2.2: SCHOOL MEAL BENEFIT ELIGIBILITY GUIDELINES (1981-82 School Year)

Free Meals

Family Size	Yearly Income	Monthly Income	Weekly Income
1	$ 5,600	$ 467	$108
2	7,400	617	142
3	9,190	766	177
4	10,990	916	211
5	12,780	1,065	246
6	14,570	1,214	280
7	16,370	1,364	315
8	18,160	1,513	349
For each additional family member add	1,790	149	34

Reduced Price Meals

Family Size	Yearly Income	Monthly Income	Weekly Income
1	$ 7,970	$ 664	$153
2	10,530	878	203
3	13,080	1,090	252
4	15,630	1,303	301
5	18,190	1,516	350
6	20,740	1,728	399
7	23,290	1,941	448
8	25,840	2,153	497
For each additional family member add	2,550	213	49

- net farm income;
- pensions, annuities, and other retirement income, including Social Security retirement benefits;
- public assistance and welfare payments;
- Unemployment Compensation;
- Supplemental Security Income (SSI) or Social Security Survivor's Benefits;
- alimony and child support payments;
- disability benefits, including Workmen's Compensation;
- veterans' subsistence benefits;
- interest and dividend income;
- cash withdrawn from savings, investments, trusts, and other resources that would be available to pay for a child's meals; and
- other cash income.

Income not counted in determining eligibility included scholarships, other educational benefits, and food stamps.

Family size was defined as the total number of individuals, related or unrelated, who live together and share household living expenses or meals.

Eligibility based on application information was independently determined during the survey analysis and was not based on the determination of SFA officials. A total of 12 cases were found where school officials had certified applicants to receive benefits although individuals were found to be ineligible on the basis of application data. Because the awarding of excess benefits in these cases was a function of errors by SFA officials and not individual applicants, these cases were excluded from the analysis.

Generalizability of Findings

The sampled SFAs and schools within SFAs were selected by FNS and local school district authorities according to availability and cooperation and not in accord with commonly accepted statistical practice. Therefore, the results of the in-home audit sample cannot be statistically generalized beyond the schools from which the sample was drawn. Rigorously defined statistical generalizations are not possible to the nation as a whole nor even to the sampled SFAs.

The SFA sample is unrepresentative in at least three important ways. First, the majority of SFAs in the nation have enrollments of fewer than 3,000 students. All sampled SFAs had enrollments of more than 7,000. Second, the sample is geographically unrepresentative. Florida alone accounts for four of the nine SFAs from which the in-home audit sample was drawn. Only one SFA, Lawrence, Kansas, is more than 400 miles west of the Atlantic. The entire western half of the country is not represented. Third, only elementary schools were included in the sample.

Because this report concentrates on individual patterns of misreporting and not on SFA or school characteristics, the unrepresentative nature of the SFA and school sample may not significantly bias individual level results. However, if individual applicants have very different patterns of misreporting in small SFAs or in western states or secondary schools, these patterns could not be detected by the current sample.

The fact that findings from the sample are not statistically generalizable to the nation as a whole does not, in itself, imply that the findings are not reflective of national patterns. A more prudent conclusion would be that generalizability must be judged empirically and not on the basis of statistical sampling theory.

Four empirical tests of generalizability were conducted. First, sampled schools within the selected SFAs were compared with nonsampled elementary schools in terms of enrollment, program participation rate, and percentage of minority student enrollment. For none of these variables were the sampled schools systematically different from nonsampled schools.

Second, on a set of overlapping questions, responses to the in-home audit were compared with responses to a survey of program participants conducted in the spring of 1980 as part of the National Evaluation of School Nutrition Programs (NESNP). The NESNP sample was nationally representative and was constructed in accord with generally accepted statistical principles. For all major predictors of misreporting contained on both surveys, the NESNP data replicated in-home audit findings. The fact that two surveys replicate each other on overlapping correlates of misreporting suggests that other findings from the in-home audits may also replicate nationally. (Appendix B presents the specifics of this analysis).

Third, demographic characteristics of respondents to the in-home audits were compared to national characteristics of school meal benefit program recipients based on FNS and NESNP data. The in-home audit sample was found to moderately underrepresent large families (five or more members) and Hispanic families. With these two exceptions, the in-home audit sample showed no statistically significant anomalies when compared to the total recipient population in terms of sexual, racial, age, income, family size, and educational characteristics.

Fourth, for all major findings the sample was broken down by SFA to determine in how many of the SFAs the finding held. For example, it was found that food stamp recipients had a much lower probability of receiving excess benefits than non-food stamp recipients. This finding held in all nine SFAs. Because all principal determinants of misreporting are replicated in all nine sampled SFAs, there is reason to believe they will also hold true in many other SFAs in the nation.

Despite the positive results, these empirical tests cannot substitute for formal statistical generalizability. Collectively the tests show that the in-home audit sample is not dramatically different from the total population of school meal program participants on any measurable dimension and that findings based on the sample replicate in a heterogenous collection of SFAs. However, the in-home audit sample cannot be used to make national estimates of the rate of misreporting on meal benefit applications for the total participant population or for population subgroups.

END NOTES

[1] S.A. Olson R.E. Klein, "Interviewers' Perceptions of Reasons for Participation Refusal in a National Longitudinal Survey, 1978-1980." Proceedings of Section of Survey Research Methods, American Statistical Association, 1980. pp. 552-557.

[2] C.F. Cannell, P.V. Miller, L. Oksenberg, "Research on Interviewing Techniques," Sociological Methodology. S. Leinhardt, editor, Jossey Bass, San Francisco, 1981.

3

SAMPLE DESCRIPTION

This section presents a brief description of the in-home audit sample. The applicants for whom an in-home audit was conducted are described in terms of their household characteristics and rates of program participation. These data are presented to introduce the reader to the sample.

The basic analysis unit for the survey was a household having at least one child receiving free or reduced-price meal benefits. Households varied considerably in size, from 2 to 11 members. No households with only one member were in the sample because foster children were excluded from the sampling frame. Foster children were excluded because foster child support payments were uniformly below the eligibility threshold for free meals. Exhibit 3.1 displays the distribution of household sizes. Households with two to five members accounted for more than 80 percent of the sample.

Two types of households predominated. Fifty-three percent of the households were headed by an adult woman with one or more children and no adult male. Forty-five percent of the households contained at least one adult male and at least one adult female as well as children. Only 1.5 percent of the households did not contain an adult female. Eighty-nine percent of the applications were completed by an adult female.

The majority of the sampled households, 68 percent, had multiple children receiving free or reduced-price meal benefits. Exhibit 3.2 displays the distribution of number of children participating in the program. For 17 percent of the sampled households, the 1981-82 school year was the first year anyone in the household had received meal benefits. The remaining 83 percent were reapplicants.

EXHIBIT 3.1: DISTRIBUTION OF NUMBER OF HOUSEHOLD MEMBERS

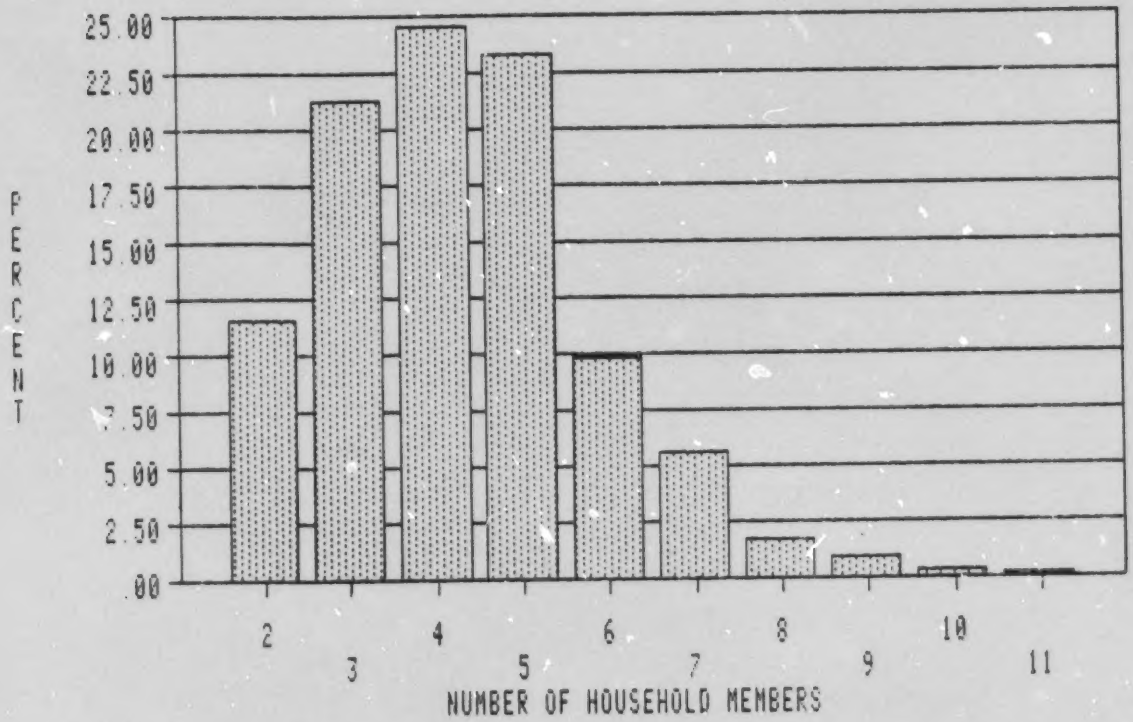
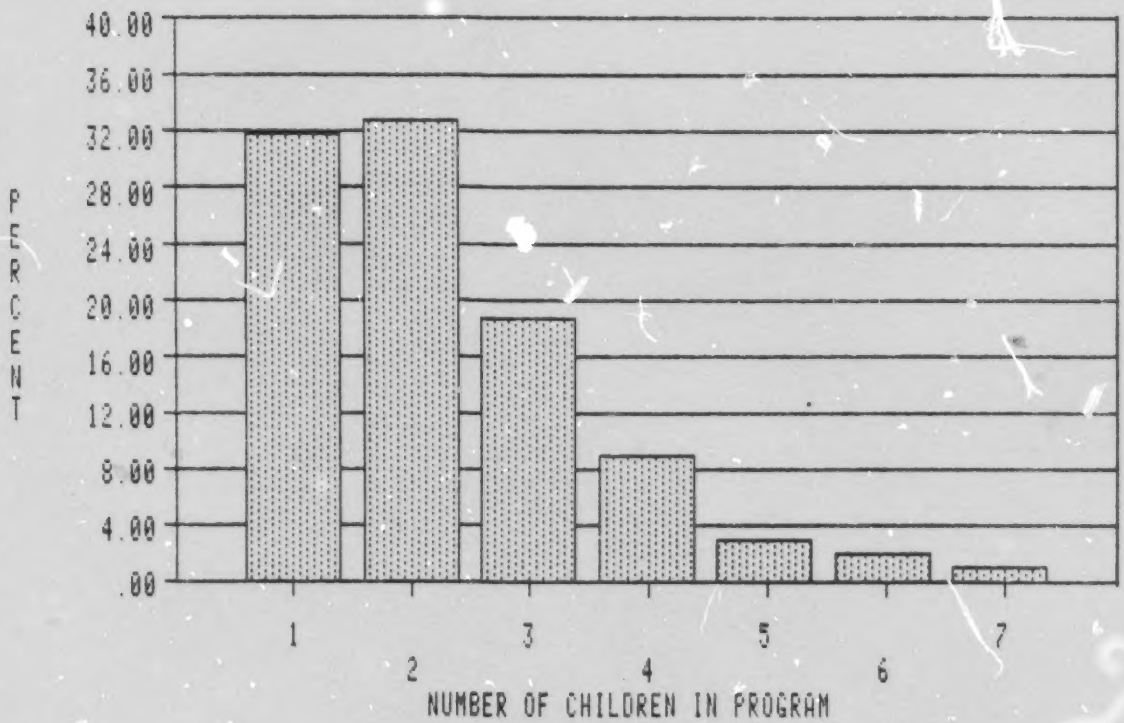


EXHIBIT 3.2: PERCENTAGE OF HOUSEHOLDS BY NUMBER OF CHILDREN RECEIVING FREE OR REDUCED-PRICE MEAL BENEFITS



Nearly half the households, 48 percent, received food stamps. Significant percentages also received AFDC, General Assistance, SSI, and Low-Income Home Energy Assistance (See Exhibit 3.3).

In terms of self-identified racial/ethnic group of the adult applicant, Whites accounted for 56 percent of the sample; Blacks for 39 percent; Hispanics 3 percent; and American Indians and Asian/Pacific Islanders one percent each (See Exhibit 3.4).

EXHIBIT 3.3: PERCENTAGE OF HOUSEHOLDS PARTICIPATING IN SELECTED SOCIAL PROGRAMS

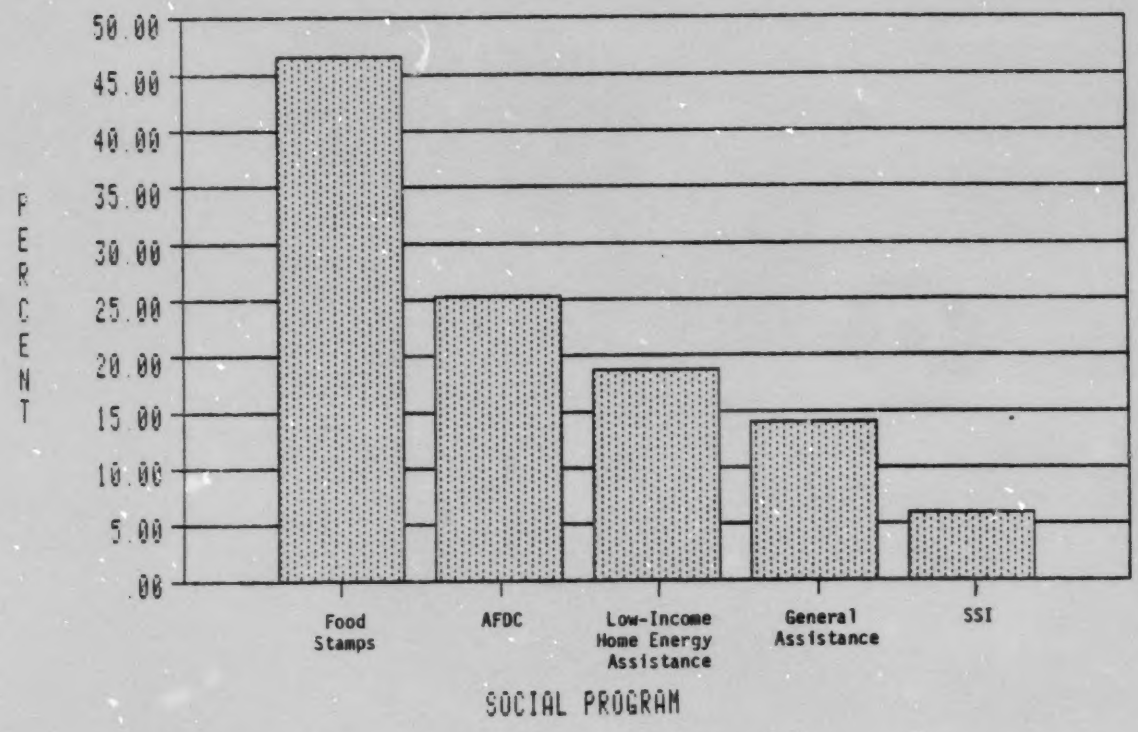
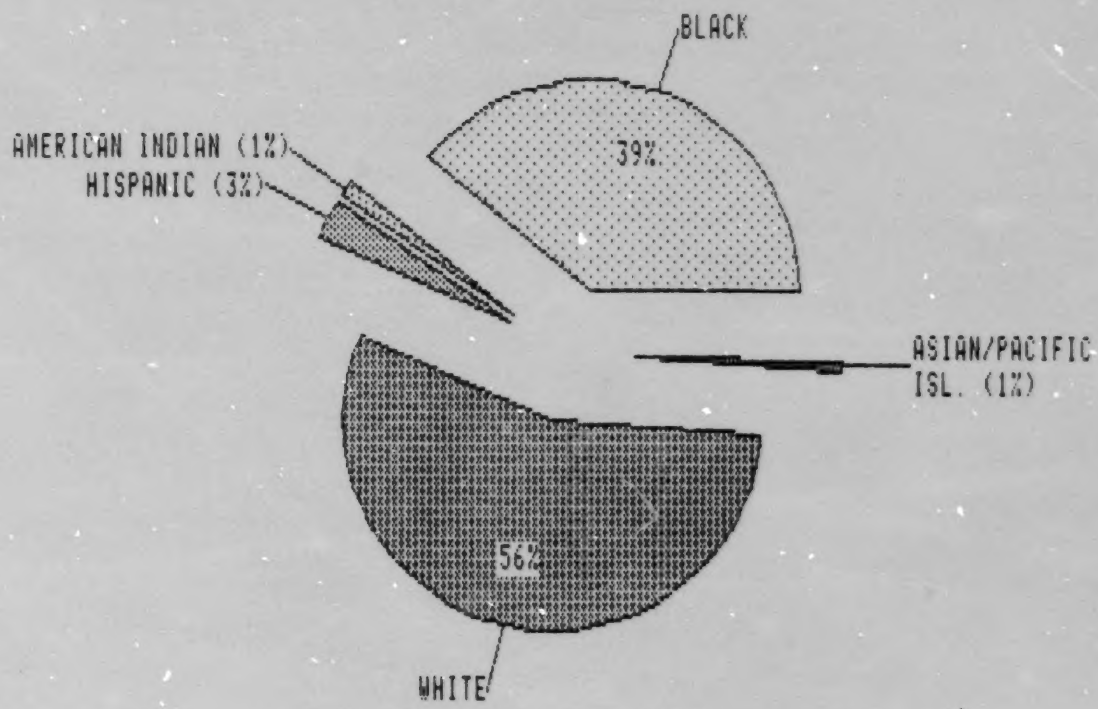


EXHIBIT 3.4: PERCENTAGE DISTRIBUTION OF HOUSEHOLDS BY ETHNICITY OF ADULT APPLICANT



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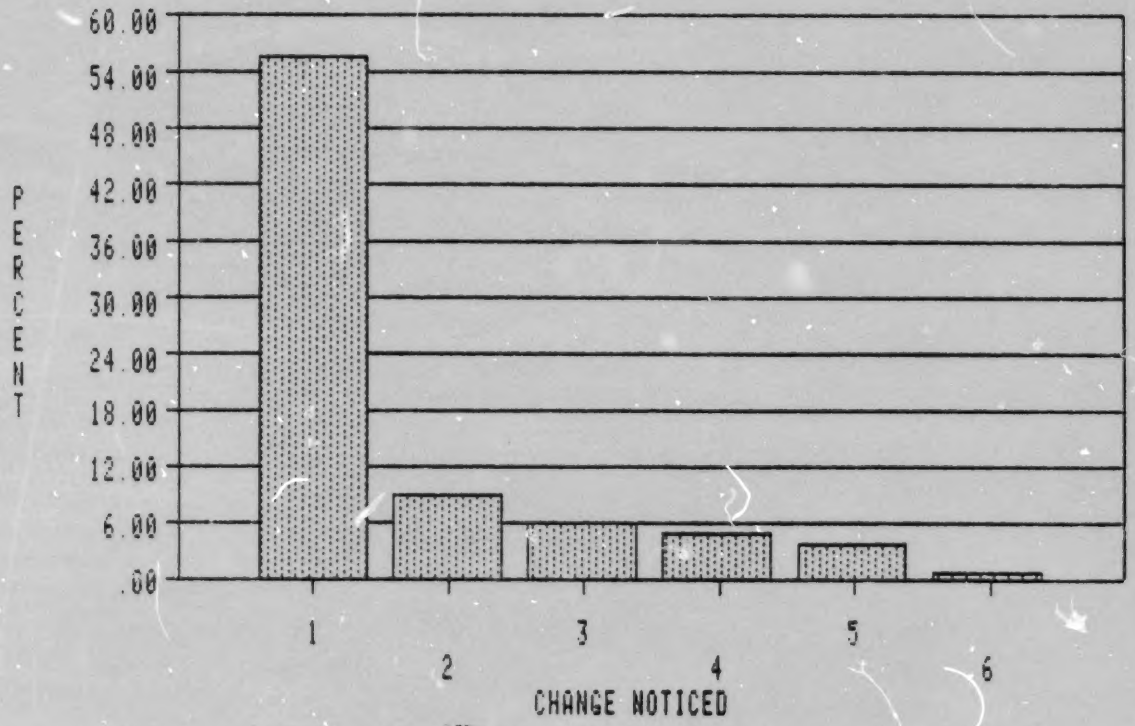
4

REACTIONS TO THE NEW APPLICATION FORM

For the 1981-82 school year, meal program applicants in sampled SFAs were required to fill out an application form that asked for considerably more information than in prior years. New requirements included a listing of the names and Social Security numbers (or an indication that no Social Security number was available) of all adult household members and a breakdown of monthly income by source. These sources were wages and salaries, Social Security, public assistance, unemployment, child support and alimony, pension and retirement benefits, and other income. Prior-year applications contained a section on income deductions for special hardships. No hardship deductions were permitted on the 1981-82 application. In addition, program eligibility guidelines were modified from the 1980-81 School Year to reflect changes in the poverty level and tightened eligibility standards. Public Law 97-35 required that eligibility guidelines for free-meal benefits not be distributed to parents with the application, and redefined income as current monthly income.

The initial set of questions during the in-home audit asked about respondent reactions to these application changes. First, individual applicants who had applied for benefits in prior years were asked if they noticed any changes in the 1981-82 School Year application. Interviewers were instructed not to prompt or list changes but only to record answers spontaneously given by respondents. A total of 56 percent of reapplicants reported they noticed no changes; nine percent of reapplicants noticed that the new application required more detailed income information; 6 percent noticed changes in eligibility guidelines; 5 percent noticed Social Security numbers were a new requirement; 4 percent noticed that current monthly income was requested; and only one percent noticed that hardship deductions were no longer allowed. (Exhibit 4.1 graphically presents these results.)

EXHIBIT 4.1: PERCENTAGE OF REAPPLICANTS NOTICING CHANGES IN MEAL BENEFIT APPLICATION FORM



KEY:
1. No change noticed.
2. Detailed income required.
3. Eligibility guidelines changed.
4. Social Security numbers required.
5. Current income must be reported.
6. Hardship deductions no longer allowed.

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Because the in-home audits were conducted an average of seven months after applications were submitted, it is likely that these figures underestimate the extent to which applicants noticed changes in the application form.

The study application appeared to present few difficulties for those who reported they remembered the prior year's application. Only 35 percent of these respondents reported the application took more time to fill out. Twenty-eight percent found the application more difficult to fill out than the prior year's application. Finally, 22 percent thought the application was more confusing than the prior year's.

A variety of public interest groups have expressed concern that the requirement of listing the Social Security numbers of all adult household members constitutes an invasion of privacy. To obtain applicants' reactions to this requirement we asked, "This year's free and reduced- price school meal application asked for the Social Security numbers of all adults. What were your concerns about this as you completed your application?" Eighty-four percent of respondents reported no concerns. Only three percent reported that they believed the requirement to be an invasion of privacy, and less than 1 percent were concerned that Social Security numbers would be used to verify income information with other agencies.

The general image that emerges among current program participants is one of little concern with the new application form. Changes in the form went unnoticed or were generally not viewed as creating difficulties. Because the sample was limited to program participants, no conclusions can be drawn as to how many, if any, otherwise eligible households were deterred from applying for program benefits because of the new application form. Thus, this in-home audit sample cannot be used to fully address issues of barriers to participation created by the new application.

5

INCOME SOURCES AND DOCUMENTATION

This chapter reviews the findings from the income determination section of the in-home audit. The core questions of the in-home audit involved an attempt to determine and to document all sources of income received by applicant households. For both the month of application and the month of the in-home audit, respondents were asked to list all income sources and to provide supporting documentation. The procedure used was to review a list of 17 possible sources of income for all adult household members and employed children. Respondents were required to respond yes or no to repeated questions as to whether an adult household member had each source of income. This long and somewhat tedious procedure was employed to minimize underreporting of income because of failure to remember an income source or failure to consider a source of money as "income." (For example, pensions received by parents or in-laws of householders were often not considered by applicants to be part of household income. Similarly, tips, cash from relatives, and wages from part-time employment were often not counted as "income.")

For every income source reported, respondents were asked to provide supporting documentation, such as pay stubs. Interviewers were provided with lists of suitable documentation for each income source. The interviewers used the documents provided to verify reported income. If a respondent reported no household income, interviewers were instructed to inquire how the household paid for food, housing, clothing, and other necessities. These inquiries often uncovered previously unreported income.

Knowledge of the sources and amounts of income of school meal program recipient households offers a variety of uses. Such knowledge could be useful in designing application forms. For example, knowledge of the relative

frequency of different types of income could aid in determining what types of income to list on application forms and in what order they should be listed. Knowledge of applicant income sources and amounts could aid in identifying the types of income that could be profitably verified to detect underreporting. Finally, knowledge of the availability of documentation could aid in deciding what documents could reasonably be required to accompany applications.

Income

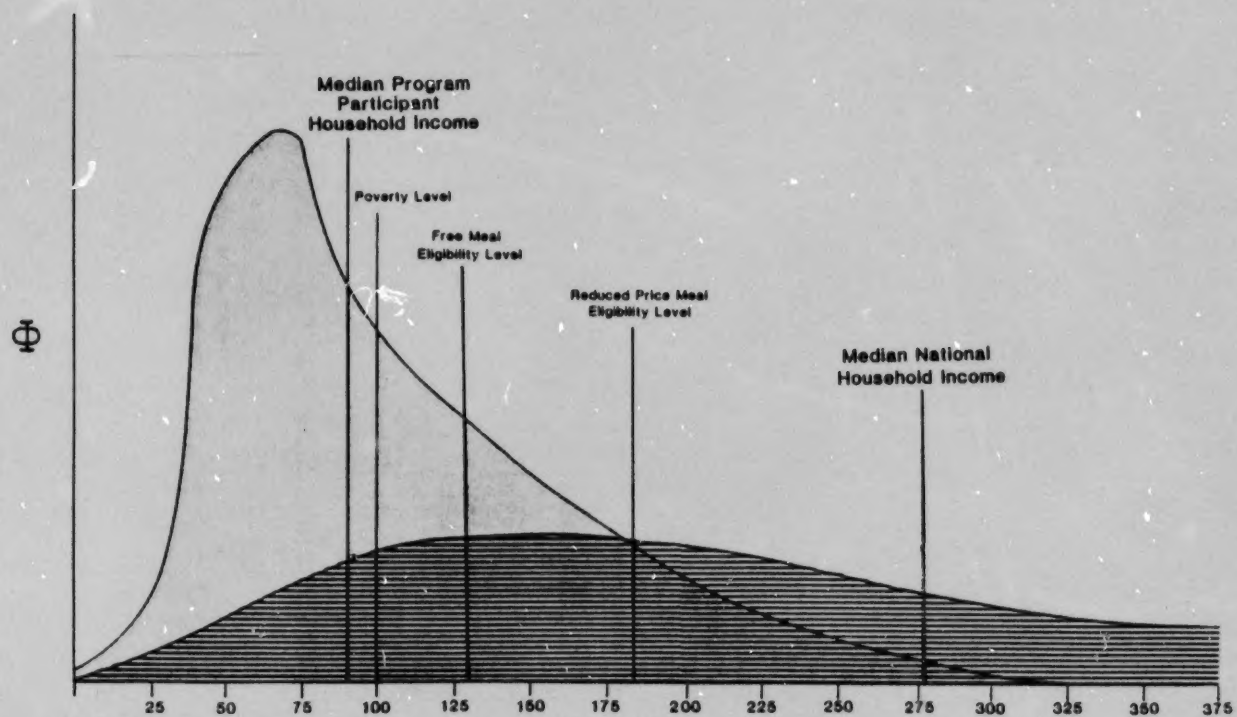
At the time of the application, respondents reported household incomes ranging from $0 to $2,640 a month, with a mean income of $733 and a median income of $623. One and one-half percent of the sampled households reported no income.

Exhibit 5.1 presents the income distribution as a percentage of the poverty level, for both meal benefit households and the total American household population. As the Exhibit shows, meal benefit recipient household income is highly skewed toward the lower income levels and the majority of recipient households have incomes below the poverty level.

Respondent households reported having between zero and seven sources of income with the vast majority (97%) having one, two, or three income sources. Exhibit 5.2 presents the distribution of number of income sources.

By far the most frequent source of income for respondent households in all nine sampled SFAs was wages and salaries. Forty-four percent reported household income from one job, 16 percent reported income from two jobs, and another 1 percent reported income from three jobs for a total of 61 percent of the sample households receiving wage income. Wages were the most common multiple source of income received by individuals in a household. (As a multiple income source, general assistance ranked second with less than one-half of 1 percent of households receiving two general assistance grants.) Not only was wage income the most frequent source of income, wage income predominantly was the largest income source in dollar value. Among households that received wage income, the median household wage income was $740 a month. Wages accounted for 68 percent of the total income received by sampled households.

EXHIBIT 5.1: INCOME DISTRIBUTION AS A PERCENTAGE OF THE POVERTY LEVEL FOR MEAL BENEFIT HOUSEHOLDS AND THE TOTAL AMERICAN HOUSEHOLD POPULATION*



☐ Program Participant Households

▤ Total American Household Population

Φ Denotes a density function indexed to meal benefit recipient household modal income. One percent of the recipient population around the mode (approximately 68 percent of poverty) indexes the one percent level on the vertical axis. The same density was used for both populations.

* Unedited data from 1980 CPS public use tape

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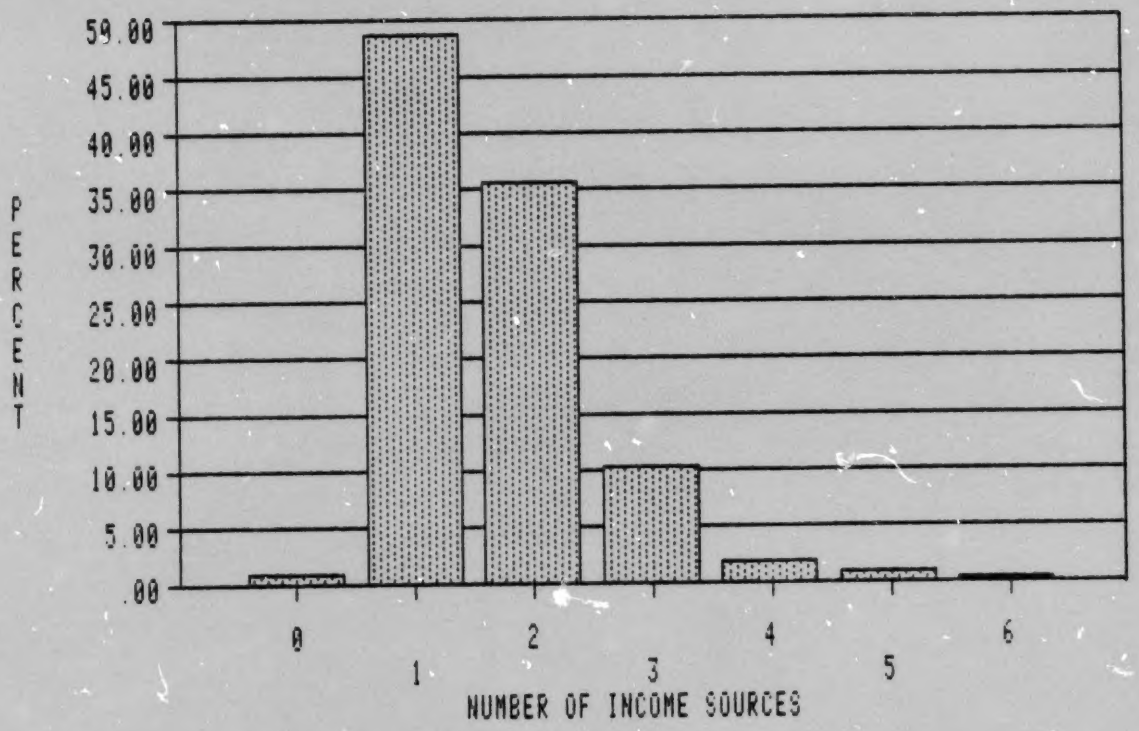
EXHIBIT 5.2: PERCENTAGE DISTRIBUTION OF HOUSEHOLDS BY NUMBER OF INCOME SOURCES



Aid to Families with Dependent Children (AFDC) was the second most frequent source of household income. Twenty-seven percent of sample of households received AFDC, which accounted for 11 percent of the total income. Eleven percent of households received general assistance and 12 percent received child suport. General assistance and child support accounted for 4 and 5 percent of total income respectively. No other income source was received by more than 5 percent of households and none accounted for more than 3 percent of total income. Exhibit 5.3 presents the relative frequency and percentage of total income by source. Exhibit 5.4 presents median income for each of the income sources.

The individual who completed the application (almost always an adult female) was the most frequent recipient of income in sample households. In 85 percent of the households the applicant had income. Fifty nine percent of all income in sample households was received by the applicant. In 26 percent of households the applicant's spouse was a recipient of income accounting for 38 percent of total household income. In 4 percent of the households children had income (usually child support, SSI, or part-time employment). Income from applicants' children under age 18 accounted for less than one-half of 1 percent of total income. Exhibit 5.5 presents these findings.

In summary, wages and public assistance program benefits dominate as the primary sources of household income. Almost 97 percent of all household income is received either by the applicant or by the applicant's spouse. This pattern held in all nine SFAs.

Income Documentation

Respondents were requested to supply supporting documentation for all income sources reported in the in-home audits. This effort was only partially successful. Respondents could not, or would not, supply documentation for 72 percent of the income sources reported for the application month (September or November). Respondents did not supply documentation for 61 percent of income sources reported for the month of the in-home audit (May or June).

Ability to supply supporting documentation at the time of the interview varied across income sources. Wage income was the best documented income

EXHIBIT 5.3: HOUSEHOLD INCOME IN APPLICATION MONTH BY SOURCE

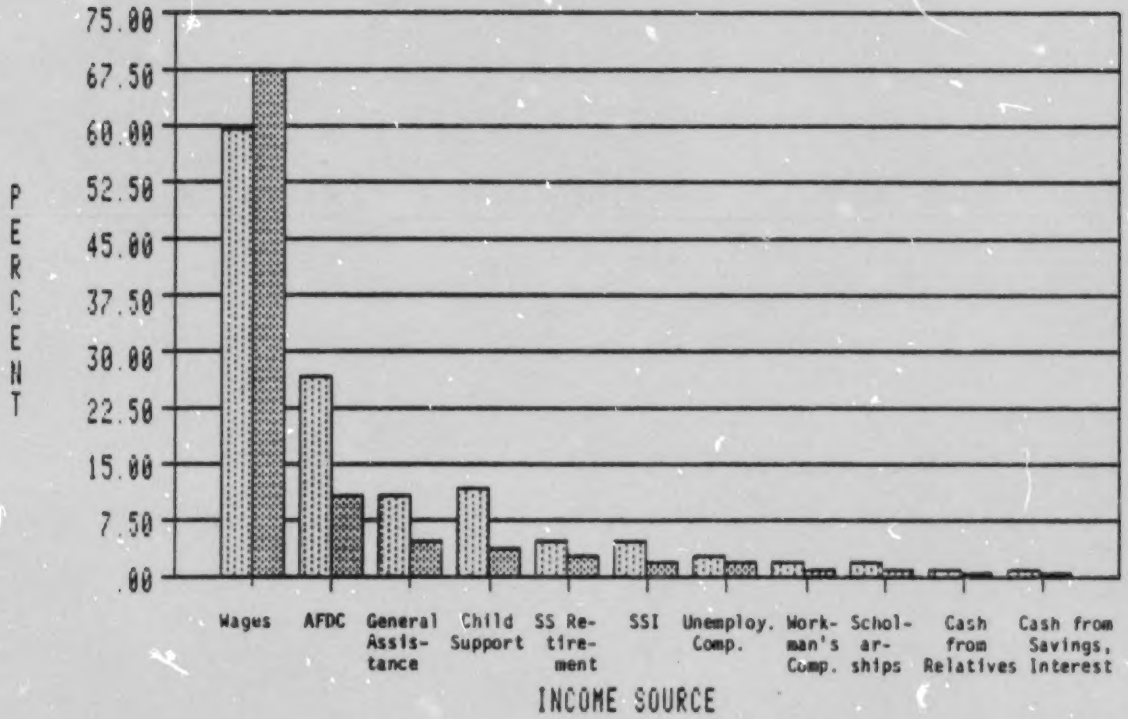


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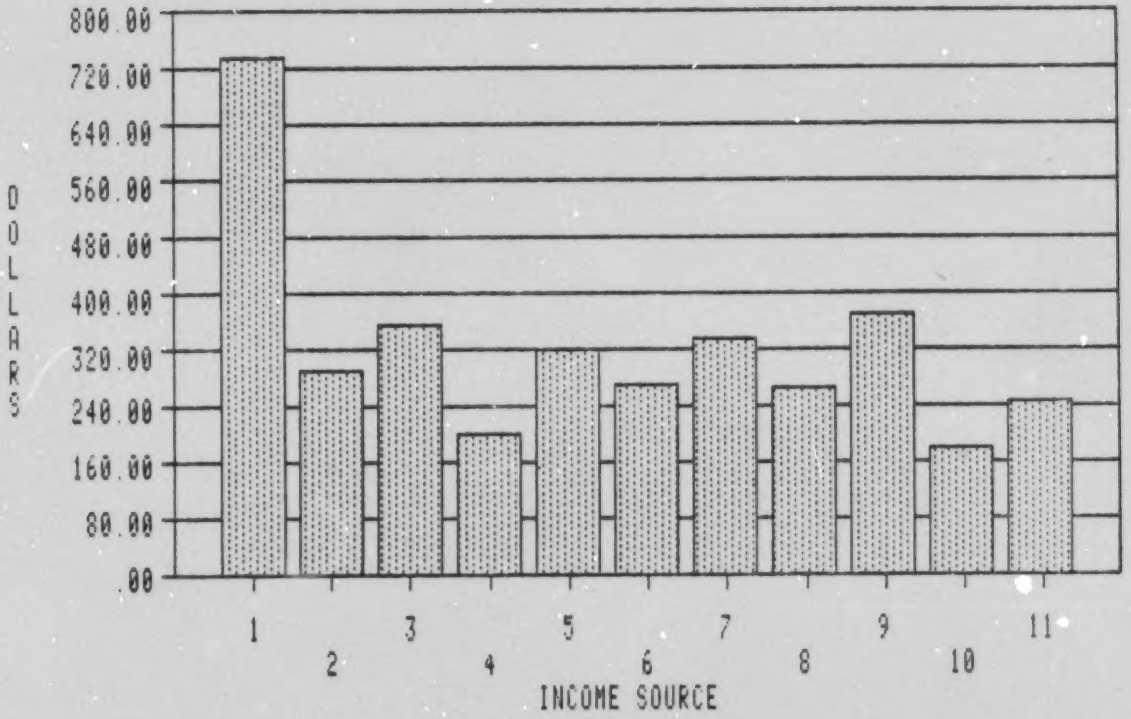
EXHIBIT 5.4: MEDIAN MONTHLY INCOME BY SOURCE



KEY:
1. Wages
2. AFDC
3. General Assessment
4. Child Support
5. Social Security Retirement
6. SSI
7. Unemployment Compensation
8. Workman's Compensation
9. Scholarships
10. Cash from Relative
11. Savings Withdrawal and Interest

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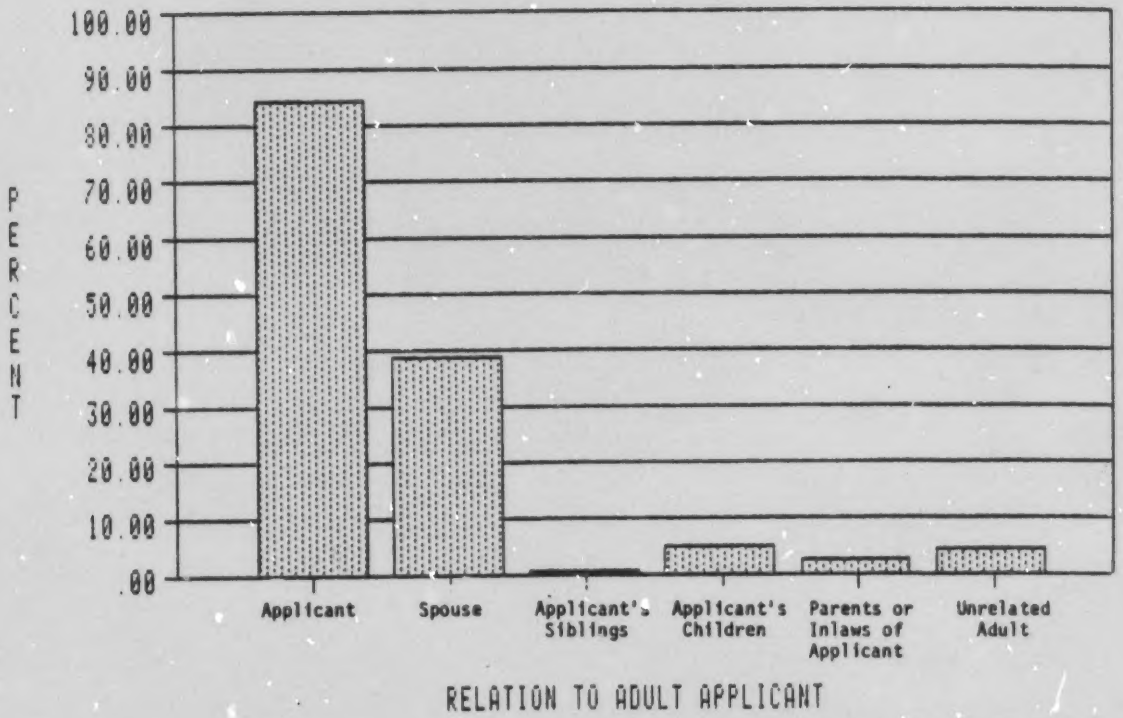
EXHIBIT 5.5: PERCENTAGE OF HOUSEHOLDS RECEIVING INCOME FROM INDIVIDUALS BY RELATIONSHIP TO ADULT APPLICANT



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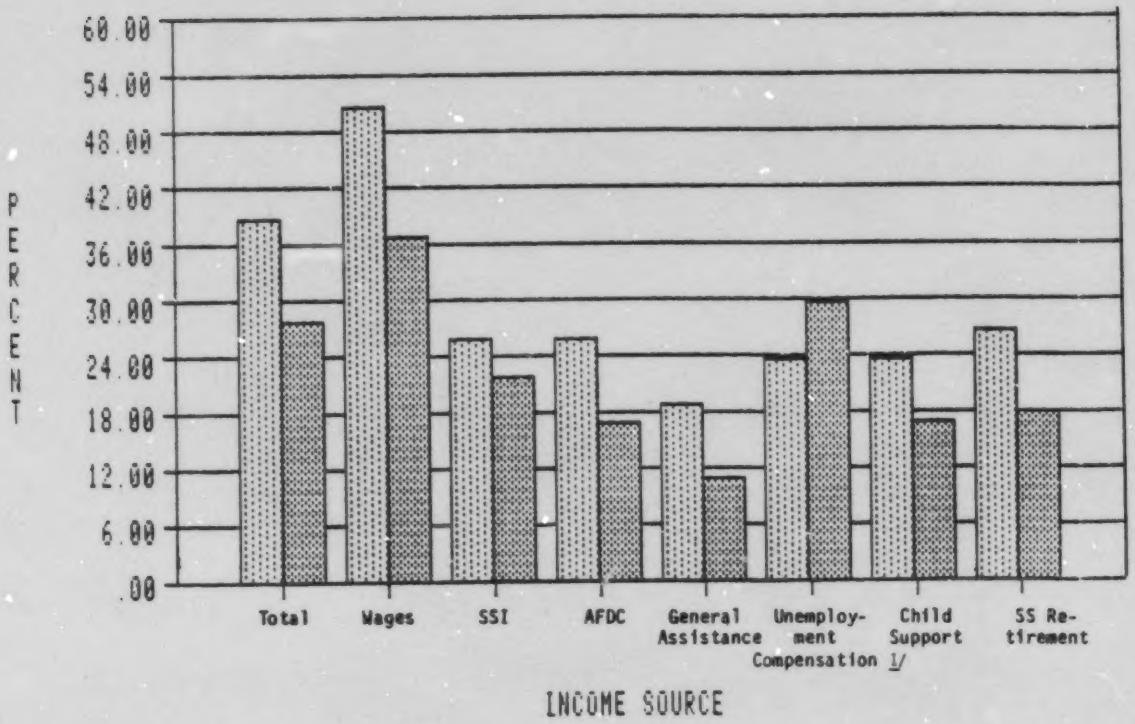
source. Fifty-one percent of wage income was documented for the in-home audit month. Thirty-seven percent was documented for the application month. The percentage of applicants able to supply supporting documentation by income source is presented in Exhibit 5.6.

The ability of in-home audits to fully uncover income underreporting is called into question by the inability to obtain documentary verification for most income sources. One can imagine that a significant proportion of individuals who underreport their income on meal benefit applications also underreport their income during in-home audits and refuse to provide documents. This suspicion appears to be supported by a strong relationship between the percentage of individuals who were found to receive excess program benefits because of income underreporting and the provision of documentation. Twenty-nine percent of respondent households who provided complete documentation were found to be receiving excess benefits compared with only nine percent of those households who provided no documentation. The question therefore becomes: is the low rate of excess benefits discovered among those who did not provide documents the result of the failure of in-home audits to detect income underreporting because respondents did not supply income documentation?

To test this hypothesis, a logistic, multiple regression model was estimated in which the relationship between documentation and excess benefits was tested while controlling for type of income received. This model found that the relationship between excess benefits and documentation is spurious. Individuals receiving wage income are more likely both to receive excess benefits and to supply documentation. Conversely, individuals receiving welfare benefits are unlikely to receive excess benefits and usually are unable to document their income. When source of income is controlled for, the difference in percentage receiving excess benefits for those providing complete documentation and those providing no documentation falls from 20 percent to 1.5 percent. Therefore the failure of in-home audits to obtain documentary verification for the majority of incomes does not appear to have significantly biased survey results.

EXHIBIT 5.6: PERCENTAGE OF HOUSEHOLDS HAVING DOCUMENTATION BY INCOME SOURCE



1/ The higher percentage of respondents having Unemployment Compensation documentation in the application month than in the in-home audit month is not statistically significant and is most likely a sampling anomaly and not reflective of actual conditions.

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Summary

The study found wages to be the major source of income, and that in most cases the individual who filled out the application had some kind of income. The study was successful in obtaining at least partial documentation from 58 percent of the respondents. With a large percentage not supplying documents, a concern was raised as to the generalizability of findings. An analysis of the relationship between provision of documents and excess benefits revealed that the lack of documentation did not contribute materially to bias. Instead, it appears that documentation of public assistance benefits was largely unavailable, and that lack of documentation by public assistance recipients does not appear to be linked to excess benefits. In contrast, wages, which are better documented, tend to be an error source. Thus presence or absence of documentation did not seem to be a source of bias.

6

EXTENT AND NATURE OF MISREPORTING

Eligibility for free or reduced-price school meal benefits is based on self-reported household income and family size. The in-home audit collected data on household size and income for the application month and compared it with information supplied on the application. The in-home audits found a significant number of discrepancies in both household size and income.

The in-home audits found discrepancies in reported number of household members for 19 percent of the sample. Discrepancies ranged from overreporting household size by six to underreporting by four. However, more than 80 percent of the discrepancies consisted of under- or overreporting household size by one. Exhibit 6.1 displays the relative frequency of household size misreporting.

Exhibit 6.2 shows the relative frequency of income misreporting by amount. Only 25 percent of applicant households reported their monthly income correctly to the dollar. Twenty-five percent of households overreported their income to some degree and 50 percent underreported their income to some degree. Misreporting ranged from $2,153 a month underreported to $1,840 overreported. On the average, household income was underreported by $88 a month.

The fact that twice as much income underreporting was discovered as overreporting is consistent with findings in other quality assurance studies. A recently completed study of income misreporting in HUD-sponsored rental assistance program verified reported income using IRS income tapes. The tape match found twice as much income underreporting as overreporting. Similarly in a study of income misreporting on applications for Department of Education Basic Educational Opportunity Grants, it was found that underreporting of income occurred twice as often as overreporting.[1]

EXHIBIT 6.1: PERCENTAGE OF HOUSEHOLDS MISREPORTING HOUSEHOLD SIZE BY AMOUNT OF MISREPORTING

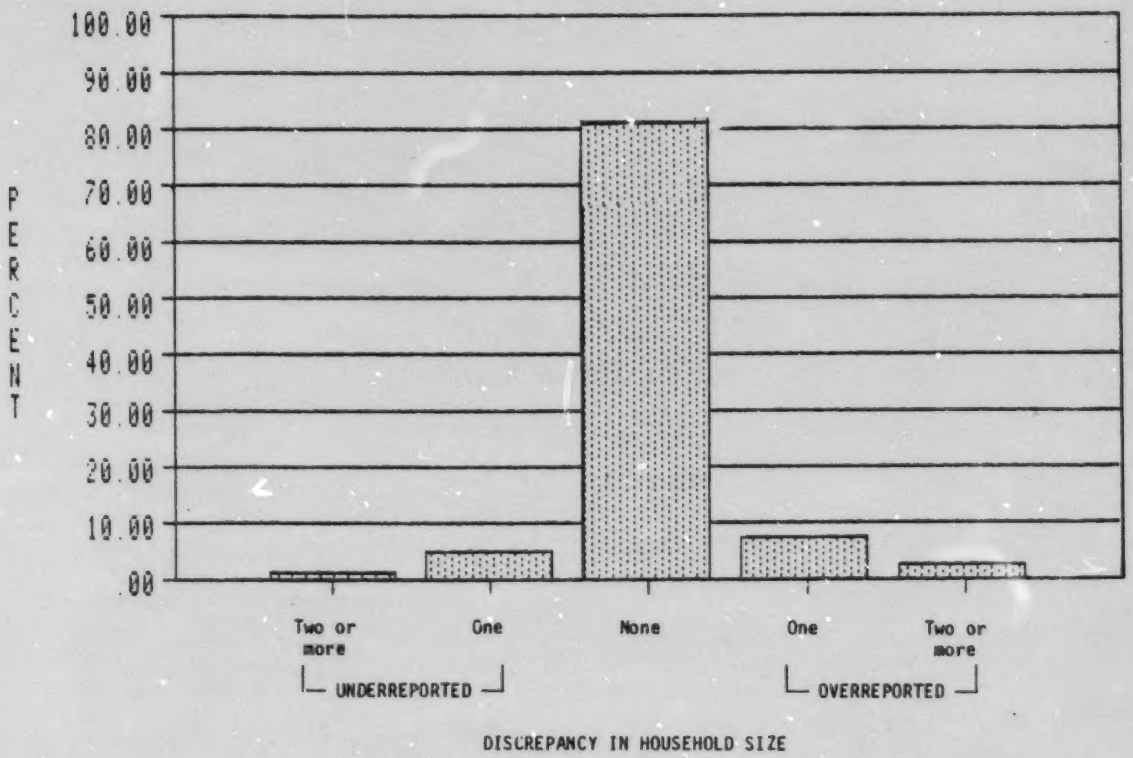
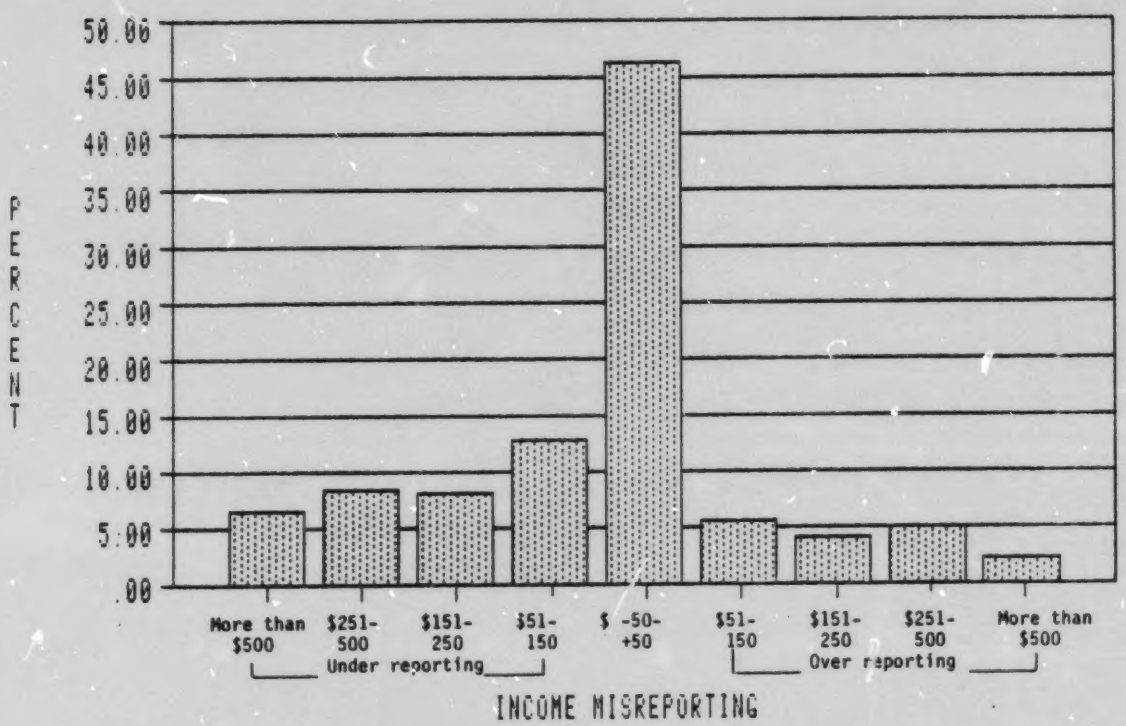


EXHIBIT 6.2: PERCENTAGE DISTRIBUTION OF HOUSEHOLDS BY MONTHLY AMOUNT OF INCOME MISREPORTING



In fact, the amount of income underreporting found by the in-home audits is of the same magnitude as underreporting of self-reported income found in most household surveys where respondents have nothing to gain by underreporting. For example, comparison of self-reported income from the Bureau of the Census' Current Population Survey with independent totals reveals that overall income in the survey is underreported by about 10 percent.[2]

These two facts suggest that while all misreporting in the free and reduced price school meal program is not intentional, the majority of misreporting favors the applicant. It is likely that some applicants have been erroneously determined ineligible due to overreporting income. Ineligibles, however, were not included in the audit sample and estimates of this type of error cannot be made.

Income Underreporting by Income Source

The meal benefit application used in Phase I sites required that applicants list their current monthly income from each of seven sources:

- wages and salaries
- Social Security
- public assistance (welfare)
- Unemployment Compensation
- child support or alimony
- pension or retirement
- other.

The probability of income underreporting and the average amount of underreporting varied considerably across income sources. At the extremes, 67 percent of the recipients of pension or retirement income underreported this income source compared with only 13 percent of the recipients of public assistance who underreported their welfare payments.

Exhibit 6.3 displays the probability a given income source will be underreported. Exhibit 6.4 shows the average (mean) amount of underreporting (when the income is underreported). The exhibits reveal that wage income and pension income have the highest probability of being underreported and have the highest average amount underreported.

EXHIBIT 6.3: PERCENTAGE UNDERREPORTING INCOME BY SOURCE OF INCOME

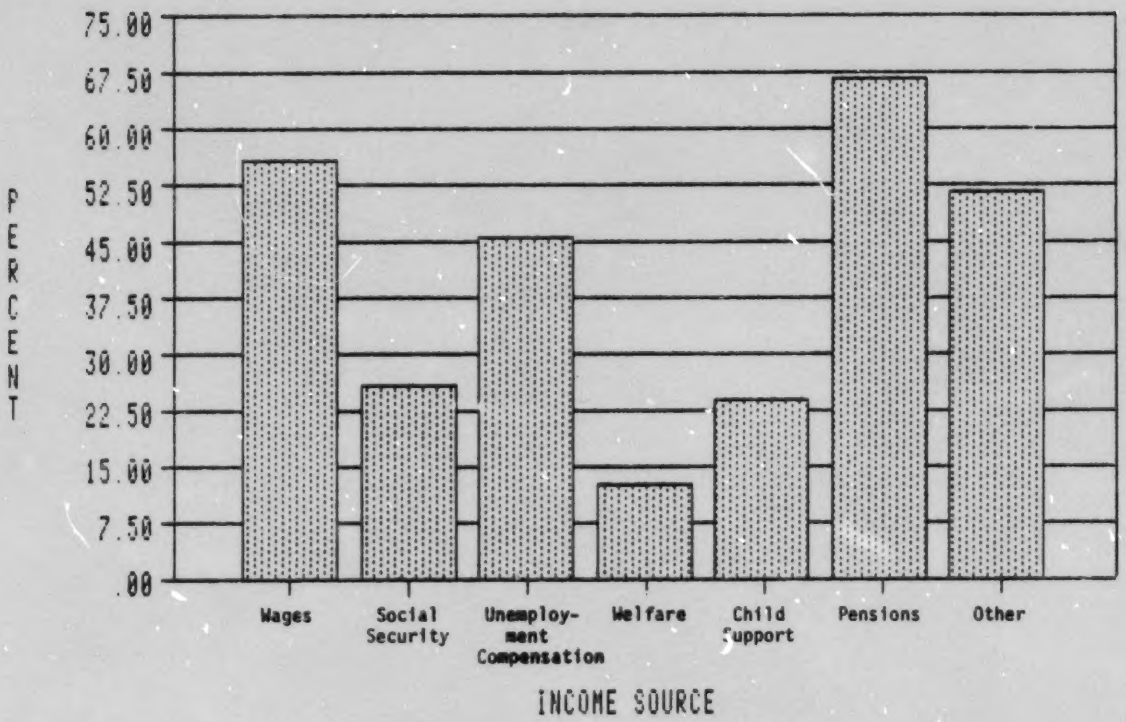


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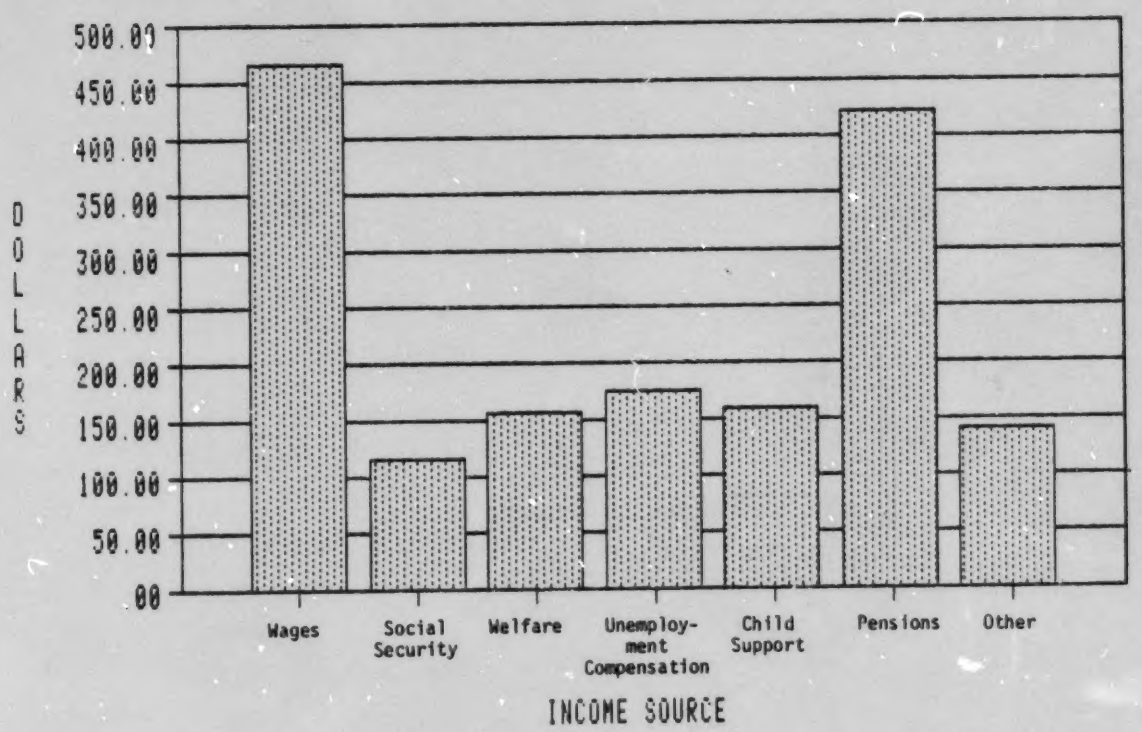
EXHIBIT 6.4: MEAN MONTHLY AMOUNT OF UNDERREPORTING BY INCOME SOURCE



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However, because pension income is received by less than one-tenth as many households as wage income, its contribution to the total amount of underreporting is much smaller. Exhibit 6.5 displays the relative contribution of each income source to the total amount of underreporting. Exhibit 6.5 makes it clear that the problem of income underreporting is largely a result of wage income underreporting. In all nine sampled SFAs, wage income predominated as the primary source of underreporting.

Effects of Misreporting on Program Eligibilty

Income and family size information is collected on meal benefit applications for purposes of determining program eligibililty. Misreporting of family size or income becomes a significant problem when it results in the award to households of inappropriate program benefits. To determine the effects of misreporting on program eligibility status for each household, eligibility was separately determined on the basis of information from the application and then on the basis of information obtained during the in-home audit.

Exhibit 6.6 compares the results of eligibility determined on application data and eligibility determined on in-home audit data. The first two rows of Exhibit 6.6 list those whose program eligibility was verified as correct by the in-home audit. This group constitutes 79 percent of the sample. This is not to say that all the income and family size information contained on the applications of these households was correct, but rather that the errors that were found on the applications did not affect program eligibility.

The third row of Exhibit 6.6 (those receiving reduced-price benefits but eligible for free-meal benefits) consists of households who overreported their income or underreported their family size so that they did not receive the full benefits to which they were entitled. Because this subgroup constitutes only 3 percent of the sample, it was not possible, given the small Phase I sample size, to explore reasons for and correlates of misreporting that reduced eligibility status.

The last three rows of Exhibit 6.6 are the groups of primary interest to this study: those whose misreporting their income or family size results in their receiving benefits in excess of those to which they are legally entitled. Households that receive free or reduced-price benefits but are ineligible for

EXHIBIT 6.5: PERCENTAGE OF TOTAL INCOME UNDERREPORTED BY INCOME SOURCE

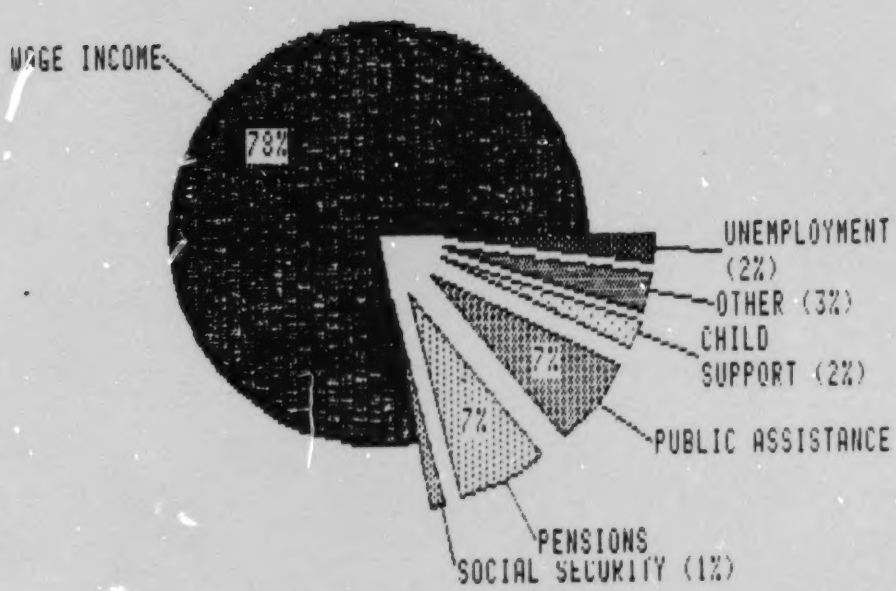

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EXHIBIT 6.6: ELIGIBILITY STATUS BASED ON APPLICATION DATA AND IN-HOME AUDITS

EFFECT	ELIGIBILITY BASED ON APPLICATION	ELIGIBILITY BASED ON IN-HOME AUDIT	PERCENTAGE
Correct Benefits	Free	Free	67.3%
	Reduced-price	Reduced-price	11.9%
			79.2%
Deficit Benefits	Reduced-price	Free	3.3%
			3.3%
Excess Benefits	Free	Reduced-price	8.0%
	Free	Ineligible	4.6%
	Reduced-price	Ineligible	4.8%
			17.4%

any benefits and those who receive free meals but are eligible only for reduced-price benefits constitute a total of 17.4 percent of the sample. (The percentage receiving excess benefits ranged from 6 to 29 percent in sampled SFAs.)[3]

Receipt of excess benefits was due almost exclusively to income underreporting and not to overreporting of family size. If no errors had been made on reported family size, the percentage of the sample receiving excess benefits would be 16.3 percent. However, if no errors in income had been reported the percentage of the sample receiving excess benefits would fall to 1.1 percent. Households receiving excess benefits underreported household income by an average of $466 per month. The median underreporting was $360. Eighty-four percent of those receiving excess benefits underreported their income by more than $100 a month. Income underreporting was the predominant source of excess benefits in all sampled SFAs.

Income Sources and Excess Benefits

Exhibit 6.3, presented earlier, showed that significant percentages of income from all sources listed in the application are underreported. However, the most relevant question is not what sources of income are being underreported but rather which underreported sources most frequently result in the award of excess program benefits. This important distinction can be demonstrated in the underreporting of public assistance benefits. Five percent of households who underreported public assistance benefits received excess school meal benefits--less than one-third of the overall percentage of misreporting. This finding leads to the seemingly paradoxical conclusion that the underreporting of public assistance benefits is a powerful indicator of not receiving excess school meal benefits. This seeming paradox is easily explained by the fact that the eligibility standards for public assistance are generally very restrictive and public assistance eligibility is usually carefully documented and repeatedly verified. Consequently, almost all households receiving public assistance payments are eligible for free school meal benefits. Given this fact, underreporting of public assistance income, even by large amounts, is unlikely to result in the award of excess school meal benefits.

What is true of public assistance is also true of unemployment benefits; the very fact of receipt of the benefit is a strong indicator of school meal program eligibility. Underreporting of unemployment benefits, in the large majority of cases, has no effect on eligibility status.

Therefore, if the goal is to prevent the award of excess benefits, the focus of income verification and documentation efforts must not be on underreporting of income, per se, but on underreporting that affects program eligibility.

Of the total amount of income underreported by households receiving excess program benefits, 84 percent was wage income. The only other source contributing more than 2 percent of the total was pension income, which constituted nine percent of the income underreported by those receiving excess benefits. Public Assistance and Unemployment Compensation each contributed less than one-half of 1 percent to the total. Exhibit 6.7 shows the relative contribution of the income sources listed on the application to underreporting that resulted in the award of excess benefits. Wage income underreporting predominated as the primary source of excess benefits in all nine sampled SFAs.

This finding leads to the conclusion that quality assurance procedures in school meal programs must include a strong emphasis on preventing or detecting the misreporting of wage income.

Characteristics of Households Receiving Excess Benefits

An extensive analysis was conducted to discover those characteristics of households receiving excess program benefits that differentiate them from other households. This section summarizes the findings of this analysis. The findings are presented in two parts: economic characteristics and household characteristics.

Economic Characteristics

Because wage income is the primary source of income underreporting that affects eligibility, the number of adult wage earners in the household is a primary correlate of excess benefits. Exhibit 6.8 displays the relationship between the number of employed adults[4] in a household and receiving excess benefits. Only 4 percent of households with no employed adults receive

EXHIBIT 6.7: UNDERREPORTED INCOME FOR HOUSEHOLDS RECEIVING EXCESS BENEFITS BY INCOME SOURCE

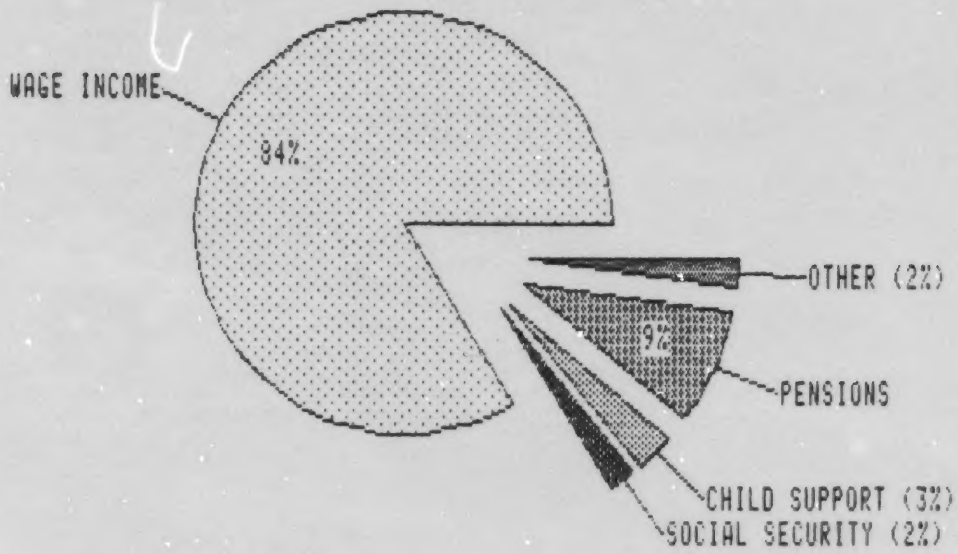
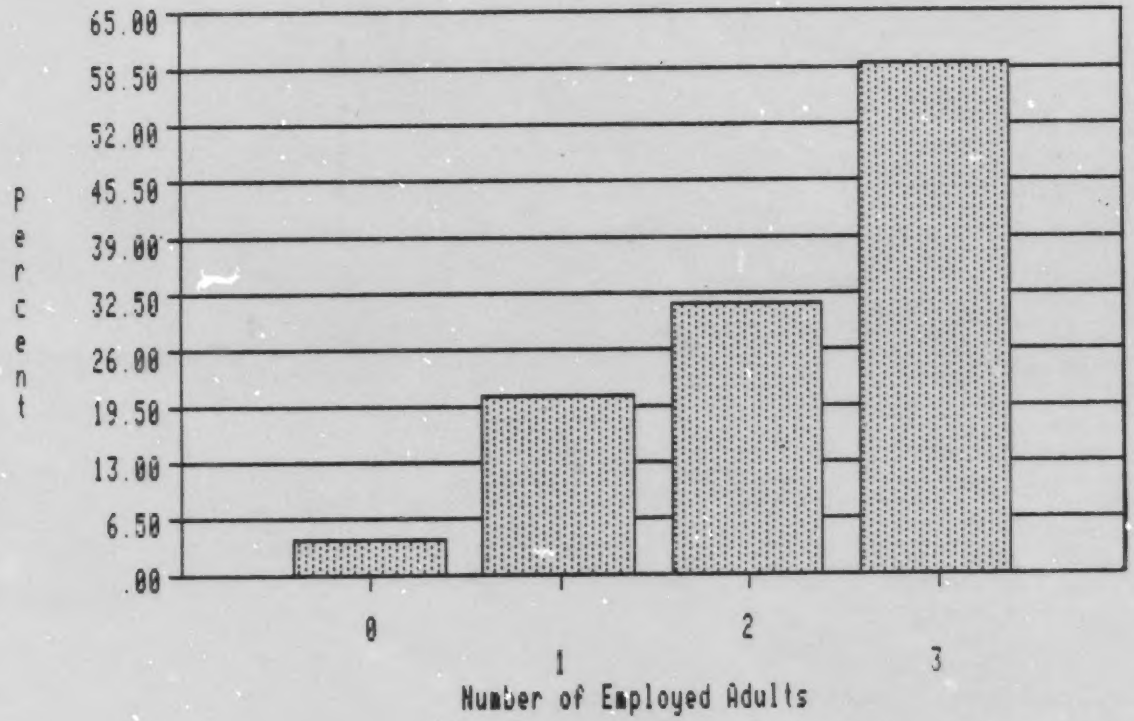


EXHIBIT 6.8: PERCENTAGE OF HOUSEHOLDS RECEIVING EXCESS PROGRAM BENEFITS BY NUMBER OF EMPLOYED ADULTS IN THE HOUSEHOLD



excess benefits. Among households with three employed adults, the percentage receiving excess benefits rose to 59 percent. A strong relationship between excess benefits and number of employed adults was found in all nine sampled SFAs.

Although households which receive excess benefits typically have wage income, they are also characterized by not having income or benefits from social programs.[5] As Exhibit 6.9 shows, households receiving benefits from Food Stamps, AFDC, General Assistance, or Low-Income Energy Assistance are all much less likely to receive excess school meal benefits than households not receiving any form of public assistance. This pattern held in all nine SFAs. One important inference that can be drawn from this finding is that verification of applicant social program benefits is unlikely to reveal significant numbers of misreporting which results in the award of excess school meal benefits. During the 1982-83 school year IVPP is conducting experiments to test this inference.

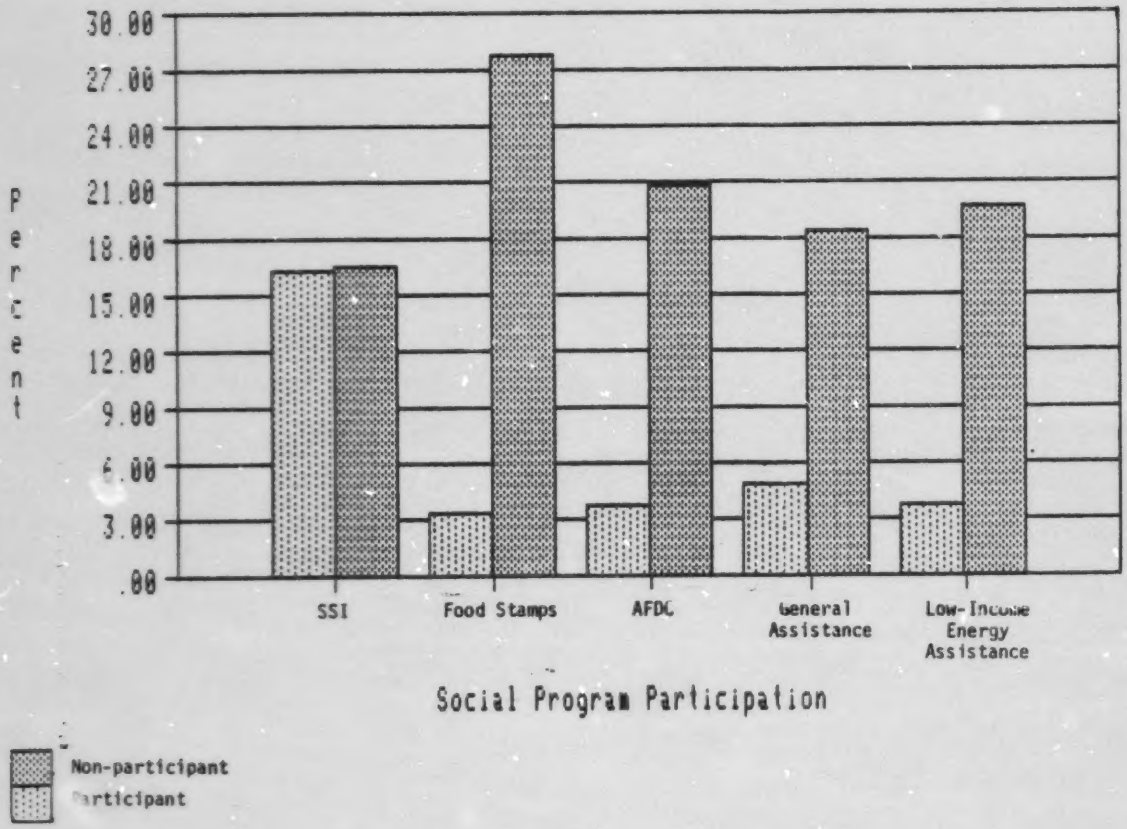
An exception to this pattern is recipients of SSI payments, who are no less likely than nonrecipients to receive excess school meal benefits. A likely reason for this exception is that SSI benefit eligibility requirements are not as tightly tied to low income as eligibility requirements in the other programs.

Household Characteristics

Number of household members, race, marital status, age of household members, education, and other personal characteristics were related to excess benefits only weakly and indirectly. No clear or consistent relationship could be found between probability of receipt of excess meal benefits and household race or ethnicity, number of household members, age of household members, number of children receiving school meal benefits, urban or rural location, number of years participating in the program, grade of recipient child, or type of dwelling (house, apartment, etc.).

Only two personal characteristics showed a constant relationship to excess benefits across SFAs: marital status of adult applicant and education of adult applicant. Adult applicants who are separated or who have never been married typically have a low rate of receipt of excess benefits (less than 7%). Married and widowed applicants have considerably higher rates of receipt of excess benefits (23 and 25%, respectively). Too few widowed applicants were

EXHIBIT 6.9: PERCENTAGE OF HOUSEHOLDS RECEIVING EXCESS PROGRAM BENEFITS BY SOCIAL PROGRAM PARTICIPATION



in the sample to make meaningful statements about this group. Divorced applicants fell in the middle range with an 18 percent rate of excess benefits. This general pattern held in all of the sampled SFAs (See Exhibit 6.10).

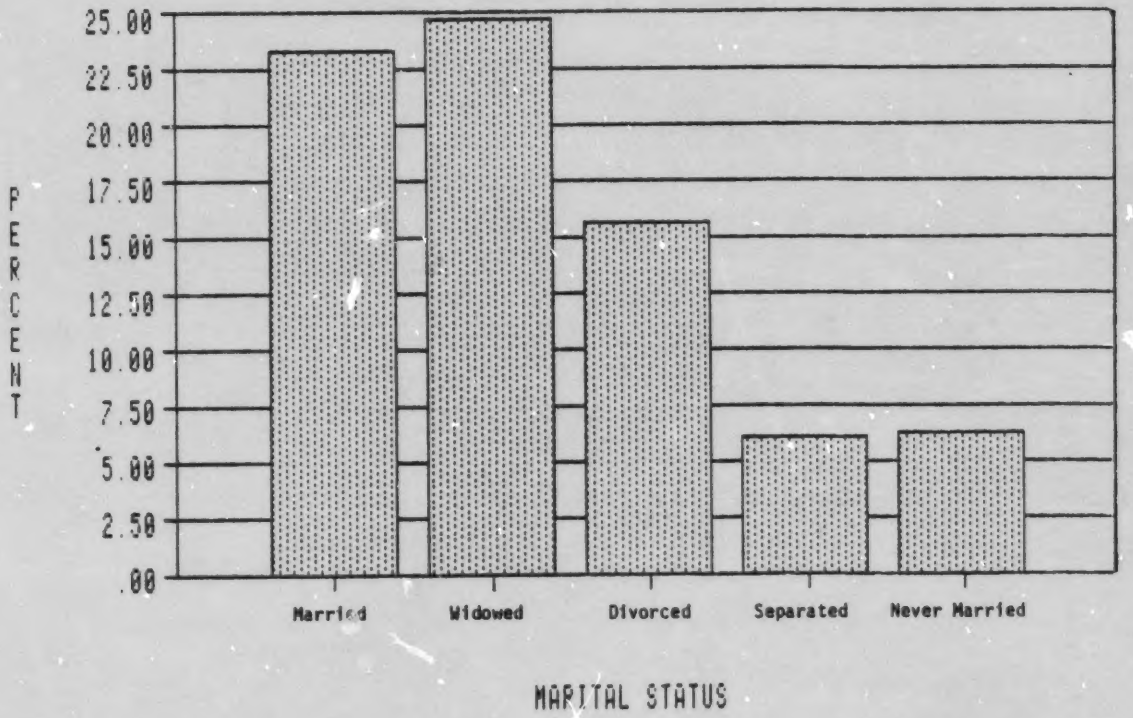
The relationship between the marital status of adult applicant and excess benefits seems to be explained by the different economic conditions frequently associated with different marital situations. When type of income received by the household is held constant, the relationship between marital status and excess benefits all but disappears. Therefore, the observed relationship appears to occur because separated or never married women (almost all adult applicants are women) have a low probability of wage income and generally low total income. The opposite is true of married applicants who have much higher average incomes than nonmarried applicants.

A similar relationship exists between the education level of the adult applicant and excess benefits. Those with only an elementary school education had a 9 percent rate of excess benefits. Seventeen percent of those with a high school educatior and 18 percent of those with some college education received excess benefits. As with marital status, the relationship of excess benefits to education is a result of differential economic status. The higher the level of education, the higher the average wage income and the higher the probability of excess benefits.

Reported Reasons for Income Discrepancies

When the amount of an income source reported during the in-home audit diverged from the amount reported on the meal benefit application by more than $25, respondents were asked the reason for the discrepancy. Explanations reported by respondents must be viewed with a certain skepticism. No respondent, for example, reported deliberate misrepresentation as a reason for a discrepancy. This result can be taken to mean that respondents are unwilling to admit deliberate fraud, not that no deliberate fraud existed. In some cases, reasons given for discrepancies were clearly inadequate. One such case was a respondent who reported on the application receiving $800 a month in wages when the in-home audit documented $2,200 monthly wage income. The respondent explained that the discrepancy resulted from reporting net instead of gross income.

EXHIBIT 6.10: PERCENTAGE OF HOUSEHOLDS RECEIVING EXCESS PROGRAM BENEFITS BY MARITAL STATUS OF ADULT APPLICANT



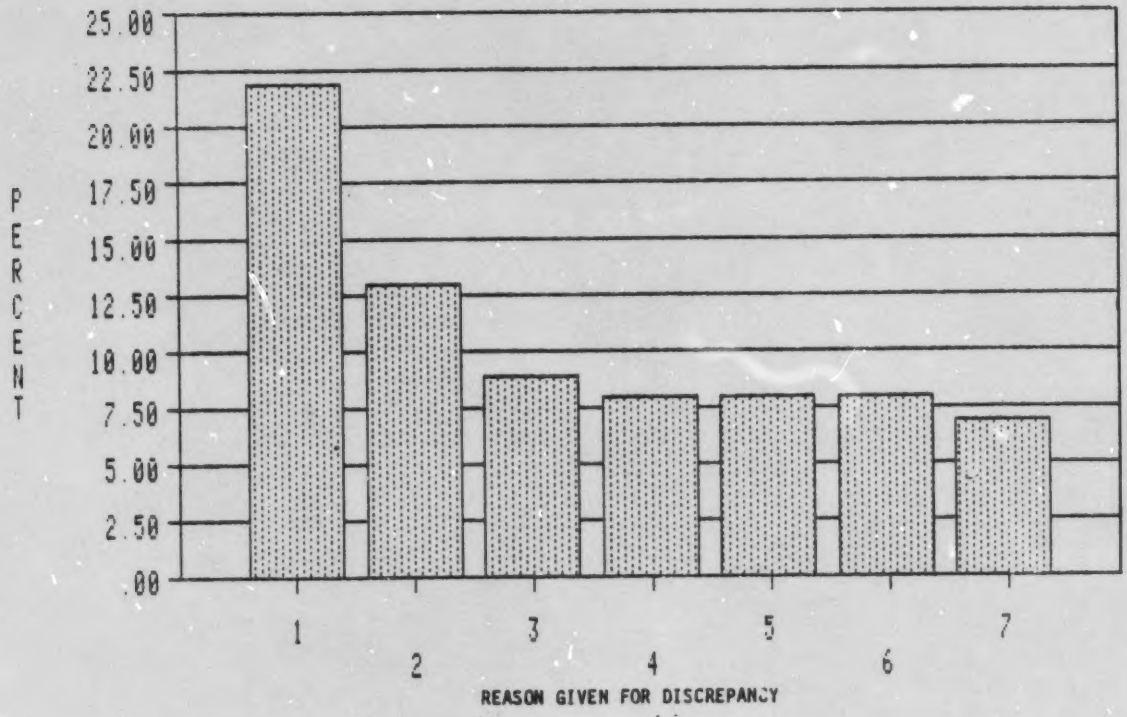
The explanations that respondents report for discrepancies provide important information. Such explanations can point to reasons for unintentional misreporting and can aid in improving instructions to parents for completing meal benefit applications. The most commonly reported reason for income underreporting was that the respondent did not know the correct amount and guessed at it (22%). Six other common reasons for underreporting were: reported net (not gross) wage income, did not believe accuracy was important, was confused by the application, projected income, did not believe a certain income source counted, and listed only income for adult applicant. Exhibit 6.11 shows the relative frequency the most commonly mentioned reasons.

Explanations for underreporting varied somewhat by type of income underreported. Reasons given for underreporting wage income followed the same pattern presented above. With the exception of "didn't believe wage income counted," the same list of reasons predominated. Explanations given for the underreporting of pension income, however, followed a different pattern. The two primary reasons cited for underreporting pension income were that the respondent did not believe pensions should count as income (43%) and that the respondent did not believe that the recipient of the pension should count as a household member (17%). The two primary reasons given for underreporting of public assistance, unemployment, and child support income were that the respondent did not know the exact amount and that the respondent was confused by the application.

Summary

The problem of awarding excess benefits to households on the basis of erroneous information reported on meal benefit applications is primarily a problem of misreporting income, not family size. Underreporting of wages and pensions accounts for 93 percent of excess benefits awarded, with wage income underreporting alone accounting for 84 percent. Households receiving excess benefits are characterized by having one or more employed adults and not participating in Food Stamps, AFDC, General Assistance, Unemployment Compensation, or Low-Income Energy Assistance programs.

EXHIBIT 6.11: THE SEVEN MOST FREQUENT REASONS GIVEN FOR INCOME UNDERREPORTING AS A PERCENTAGE OF TOTAL REASONS GIVEN



KEY:
1. Didn't know correct amount, guessed.
2. Reported net, not groww income.
3. Did not believe accuracy was important.
4. Confused by the application.
5. Projected income.
6. Did not believe a certain income source counted.
7. Listed income for adult applicant only.

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END NOTES

[1] Applied Management Sciences, An Evaluation of Income Certification Procedures in HUD-sponsored Rental Assistance Programs: Stage II Report, December 1982, pp. 5.7, 5.25 and Applied Management Sciences, Quality Control Analysis of Selected Aspects of Programs Administered by the Bureau of Student Financial Assistance: 1979-80 IRS Comparison Study. February 1982, p. 3.13

[2] U.S. Bureau of the Census, Current Population Reports, Series P-60, No. 123, Money Income of Families and Persons in the United States: 1978, U.S. Government Printing Office, Washington, D.C., 1980, pages 296-297.

[3] The effects of misreporting on program eligibility were determined by comparing in-home audit data with application data and not by comparing in-home audit data with the SFAs' determination of eligibility. In a small number of cases the SFAs made errors in determining eligibility. To assure that these errors were not inappropriately attributed to applicant misreporting, program eligibility based on application data was recomputed. However, 95 percent of the sample showed no errors in SFA eligibility determination.

[4] Employed adults are defined as persons living in the household who reported receiving wage (or earned) income. The majority of these wage earners were over the age of 21.

[5] The fact that the in-home audits found households with wage income to have a high probability of receiving excess benefits does not nesessarily imply that asking for adult wages on the application would produce the same finding. Income misreporters, by definition, misreport. This information could be more easily misreported on the application than during the in-home audit where the applicant was asked about 17 sources. of income. This topic is explored in detail in Section 9.

7

ELIGIBILITY CHANGE DURING THE SCHOOL YEAR

Eligibility for school meal benefits is determined early in the school year based on reported income and family size in the month of application. However, many program beneficiaries experience changes in income or household size large enough to affect program eligibility during the 1981-82 school year. This section explores the topic of income change and its effect on program eligibility. The analysis is based on a comparison of household income and family size for the application month, usually September or October 1981, with income and family size for the month of the in-home audit usually May or June 1982. For both periods, data from the in-home audit were used instead of application data to prevent confounding application misreporting with income change.

Fifty-eight percent of the sampled households reported a monthly change in income of $50 or more. Thirty-eight percent experienced an increase in income and 20 percent experienced a decreased average income. Median household income increased by $41 a month. Exhibit 7.1 displays the relative frequency of monthly income change by amount.

Although 58 percent of the sample reported an income change of more than $50 a month, these changes affected the eligibility of only eight percent of sampled households. The effects of income change on eligibility are shown in Exhibit 7.2.

In 82 percent of the cases the change did not affect eligibility; 7 percent of the households experienced a sufficient change in income to increase their eligibility, and 11 percent of the households experienced an increase in income that was large enough to cause a decrease in eligibility.[1]

Changes in eligibility were almost exclusively a function of changes in income. Less than one-fourth of 1 percent of the sample had a change in eligibility that was due solely to changes in the number of household members.

EXHIBIT 7.1: DISTRIBUTION OF HOUSEHOLD INCOME CHANGE

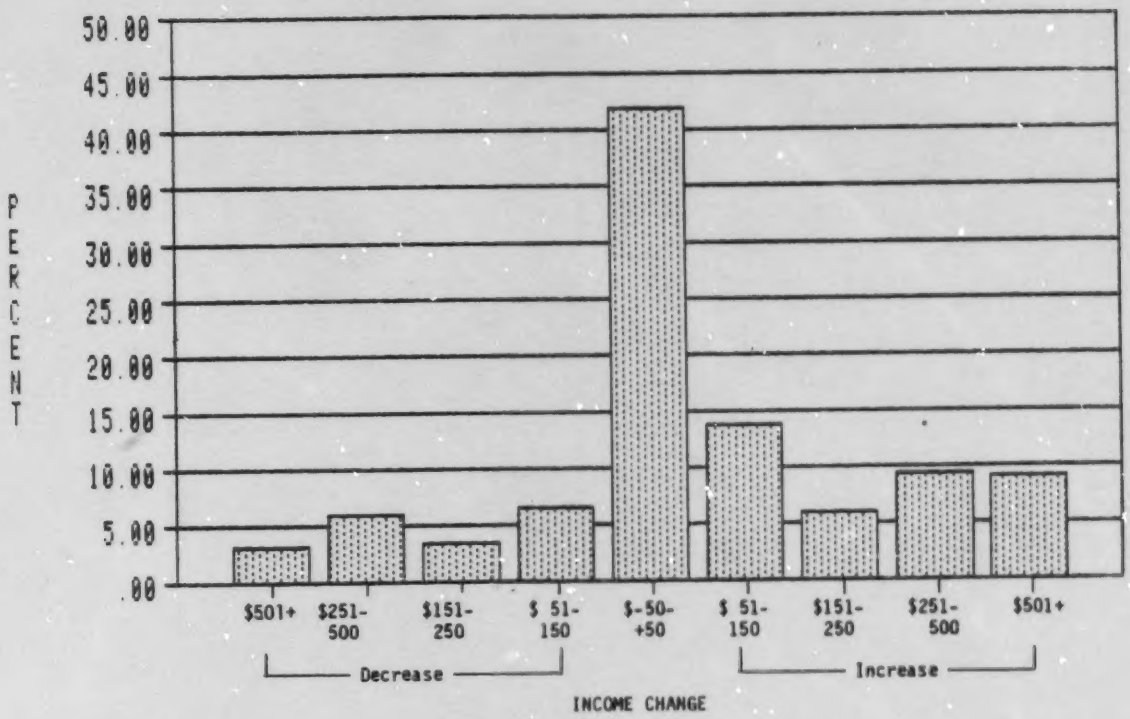

EXHIBIT 7.2: EFFECTS OF INCOME AND HOUSEHOLD SIZE CHANGE ON PROGRAM ELIGIBILITY 1

EFFECT	ELIGIBILITY IN APPLICATION MONTH	ELIGIBILITY IN IN-HOME AUDIT MONTH	PERCENTAGE
No Change	Free	Free	60.7%
	Reduced-price	Reduced-price	12.9%
	Ineligible	Ineligible	8.2%
			81.8%
Increased Eligibility	Reduced-price	Free	4.2%
	Ineligible	Free	.4%
	Ineligible	Reduced-price	2.6%
			7.2%
Decreased Eligibility	Free	Reduced-price	6.5%
	Free	Ineligible	1.4%
	Reduced-price	Ineligible	3.2%
			11.1%

1 Eligibility status for both the application month and the in-home audit month were determined on the basis of in-home audit data and not on the basis of application data.

Nonetheless, it is interesting to note that nearly 20 percent of the sample households experienced a change in household size during the course of the school year. Nine percent had a decrease in household size and 10 percent an increase.

Wage income was by far the most common source of increased income and decreased eligibility. Exhibit 7.3 shows the percentage of sampled households having an increase in monthly income of $50 or more by income source and the percentage of households whose eligibility was reduced by change in income source.

Increased wage income by itself accounted for 91 percent of the reduced eligibility. Increased wage income, in combination with changes in family size or changes in other income, accounted for more than 97 percent of the reduced eligibility. In all nine sampled SFAs, wage income increases were the primary source of reduced eligibility. In less than one-half of 1 percent of the sample was there a reduction in program eligibility not accompanied by an increase in wage income. In fact, increases in public assistance payments, Social Security, pensions, and Unemployment Compensation were more likely to signal increased program eligibility than decreased program eligibility. This is because an increase in any of these income sources is usually associated with a much larger decrease in wage income. Conversely, decreases in welfare, child support, Social Security, and Unemployment Compensation income were more likely to be associated with a decrease in program eligibility than with increased eligibility.

The probability that an increase in income will reduce program eligibility is almost by definition a function of how large the income increase is. Fewer than 2 percent of the households with increases in income less than $50 a month had changed eligibility status. Increases of $100 or less a month reduced eligibility status for about 3 percent of households. Increases in income of more than $100 a month were much more likely to affect eligibility. Twenty-two percent of income increases of $101 to $150 resulted in decreased eligibility, 42 percent of increases greater than $151 to $200 and 46 percent of increases over $200 resulted in decreased eligibility. These findings are presented graphically in Exhibit 7.4.

EXHIBIT 7.3: PERCENTAGE OF HOUSEHOLDS HAVING AN INCOME INCREASE BY SOURCE OF INCOME AND PERCENTAGE OF HOUSEHOLDS HAVING AN INCOME INCREASE THAT RESULTED IN REDUCTION IN PROGRAM ELIGIBILITY BY INCOME SOURCE

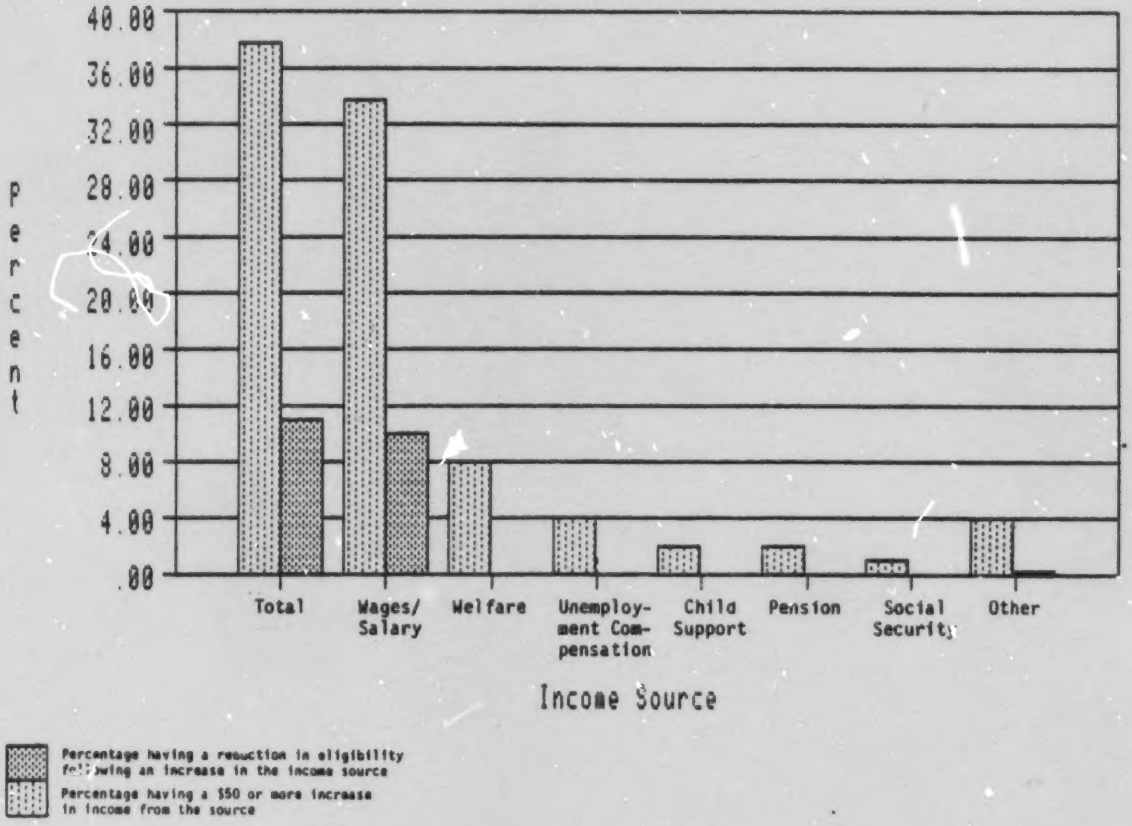

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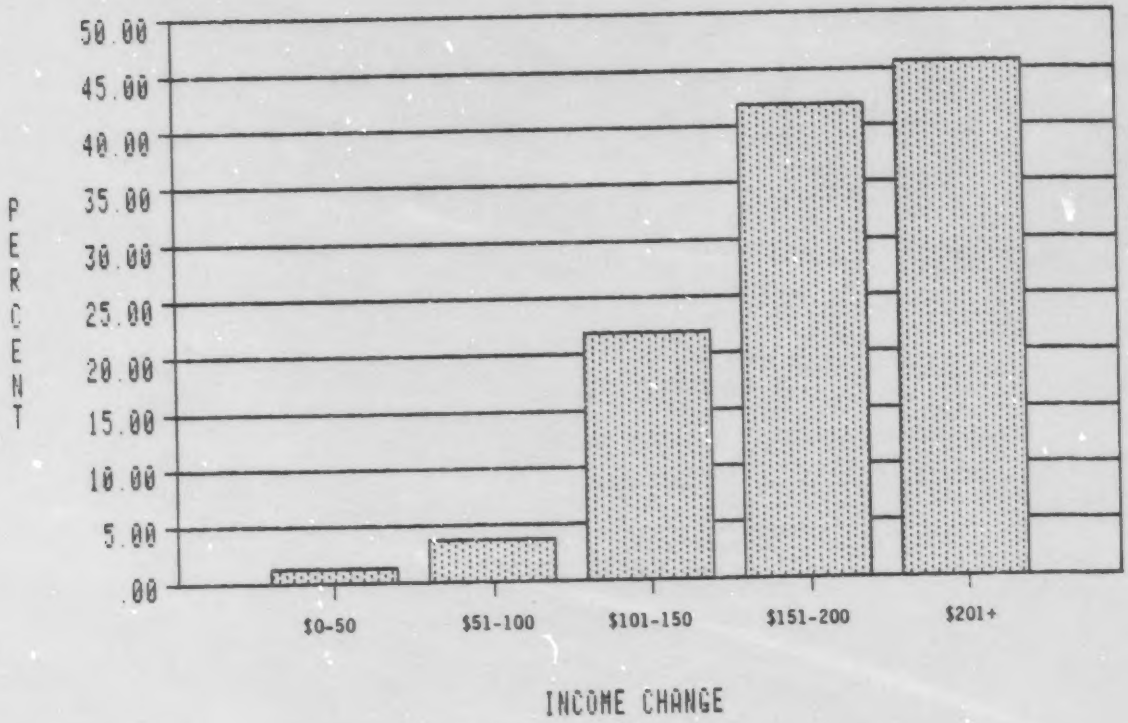
EXHIBIT 7.4: PERCENTAGE OF HOUSEHOLDS WITH REDUCED ELIGIBILITY BY AMOUNT OF INCOME INCREASE



Current regulations require that households report any increase in monthly income of $50 or more. However, because an increase in income in the range of $50 to $100 a month reduces eligibility for very few program participants, the minimum increase that must be reported could be raised to $100 a month without materially increasing program costs. Such a change would reduce the number of income changes that must be reported by 30 percent while reducing the discovery of households having a change in eligibility by less than 4 percent.

It is interesting to note that fluctuations in income result in eligibility changes throughout the year. More often than not, these changes are increases in income so that it cannot be assumed that income fluxuations will have a correcting effect on applicant misreporting. Thus, the misreporting rate found at the beginning of the school year is likely to increase as the year goes on.

Summary

During the course of the school year, the eligibility status of 18 percent of the sample changed. Seven percent experienced an increase in eligibility and 11 percent experienced a decrease in eligibility. These changes in eligibility status were almost exclusively related to changes in income rather than to changes in family size. Increases in wage income were the primary determinant of decreases in eligibility status.

END NOTES

[3] The term "increased eligibility" refers to a change in eligibility that increases benefits such as a change from reduced-price to free meal eligibility. The term "reduced eligibility" refers to a change that would reduce the level of benefits to that the household is entitled to receive.

8

ERROR-PRONE PROFILES

Any program that disburses public funds on the basis of need or other qualifying conditions must be able to determine which cases are most likely to be unqualified so corrective procedures can be instituted. A procedure many government agencies have used to identify cases with a high probability of error is known as "error-prone profiles." Error-prone profiles are methods of using application or other data available to the certifying agency to select cases for review that have a high probability of containing an error that effects eligibility. Error-prone profiles are used by Food Stamps, AFDC, Social Security Administration, Disability Assistance, Student Financial Aid, and the IRS. This chapter of the report presents an error-prone profile developed for the school meal program. Use of the profile would allow local SFA officials to select, on the basis of application data, applications for review that are likely to contain misinformation that would, if uncorrected, result in the award of excess benefits.

An earlier IVPP report--"Report on Phase I Error-prone Model Development" May 26, 1982--presented error-prone profiles based on the National Evaluation of School Nutrition Programs (NESNP), a nationally generalizable data base. Unfortunately, the NESNP data base did not contain verified meal benefit application variables. Therefore the profiles developed could not provide a method of scoring applications on relative likelihood of containing errors. Appendix B of this report presents a cross-validation of the NESNP error-prone profiles using the in-home sample from the present study. This chapter presents new, application-based, error-prone profiles.

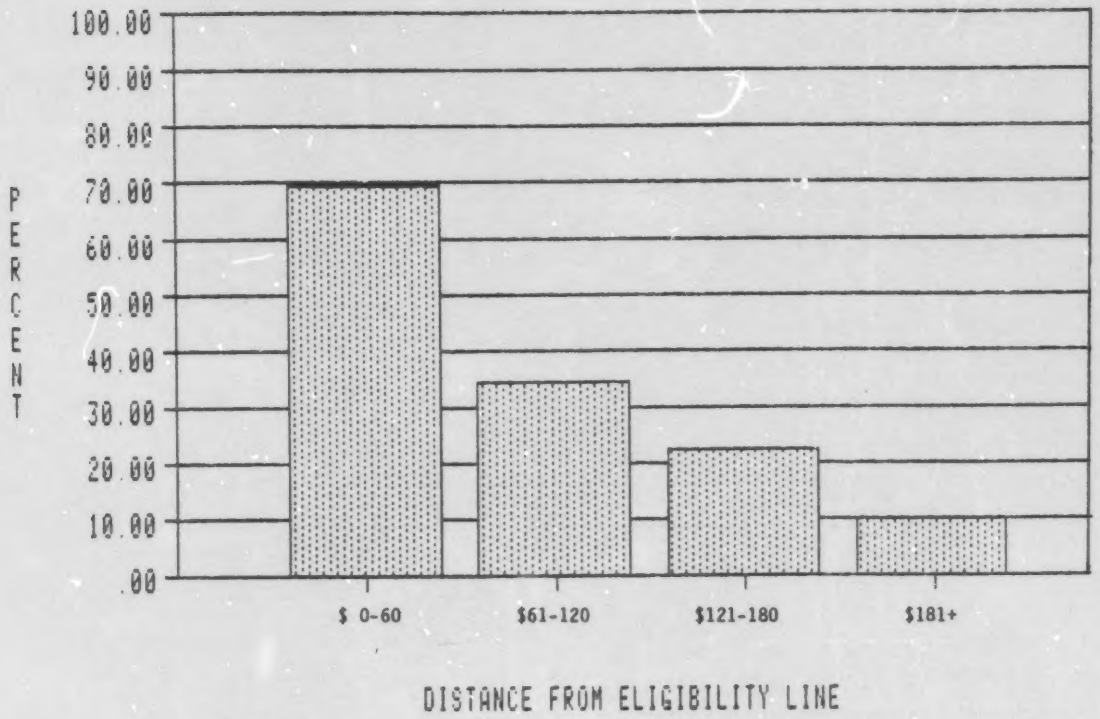
Before presenting the application-based predictors of receipt of excess benefits, it is important to note the distinction between the findings presented earlier and the findings presented in this chapter. Earlier findings were

based entirely on information that was verified during the in-home audit. For instance, the presence of multiple employed adults found during the in-home audit was associated with receipt of excess benefits. This occurred, because the income of all adults had not been reported on the application, yet additional adult wages were detected during the in-home audit. Because of misreporting on the application, the number of employed adults derived from application data is not likely to be a good predictor of excess benefits. It was not possible to assess this, however, because the number of employed adults could not be derived from the 1981-82 application. Total household wage income from the application was not a good predictor. Similarly, while the in-home audits found receipt of pension income to be related to misreporting, pension income is often left off the application, making it a poor predictive variable based on application data. Thus, the earlier findings that were based on in-home audit data help to explain the nature of misreporting. The analysis of application data will identify application variables, whether reported accurately or not, that could be used to predict misreporting. The following findings are based on data reported on the application relative to eligibility verified through the in-home audit.

The only application predictor of receipt of excess benefits that replicated in all nine sampled SFAs was what we call "threshold reporting." "Threshold reporting" is reporting a monthly income that is on or near the free or reduced-price eligibility cutoff point. For example, a family of five is eligible for reduced-price benefits if it has a monthly income of $1,516 or less. If a family of five reported its monthly income to be $1,506, it would, under our definition, be a "threshold reporter." Exhibit 8.1 displays the relative frequency of receipt of excess benefits by difference between eligibility cutoff point for benefits received and reported income. Seventy percent of those applicants who reported incomes within $60 a month of the eligibility cutoff point receive excess benefits compared with only 10 percent of those who reported incomes more than $180 a month from the eligibility cutoff point. (The $60 intervals used are not arbitrary but were constructed to maximize the discriminant power and robustness of differences.)

The 1981-82 application form used in this study did not contain information on receipt of food stamps. However, the FNS school meal benefit application recommended for the 1982-83 school year does request this

EXHIBIT 8.1: PERCENTAGE OF HOUSEHOLDS RECEIVING EXCESS BENEFITS BY DIFFERENCE OF REPORTED MONTHLY INCOME FROM ELIGIBILITY THRESHOLD



information. Therefore, it was appropriate to examine receipt of food stamps relative to receipt of excess benefits, even though food stamp participation could only be identified during the in-home audit. Food stamp participation data can be used to improve significantly the prediction of receipt of excess benefit reporting. Use of food stamp participation data in the error-prone profile rests on the assumption that such information will not be significantly misreported on meal benefit applications. This assumption may be reasonable on the grounds that applicants for school meal benefits have no overt motivation to misreport food stamp participation. Eligibility for school meals is based solely on income and family size. It is possible, however, that some applicants incorrectly believe that food stamp participation does affect eligibility and therefore may not report it on the application

Food stamp participation status was added to the application variables and a new error-prone profile was developed through a six-stage process. (Appendix D contains the list of variables that were examined.) First, bivariate relationships between excess benefits and application variables were examined and the application variables were rescaled to maximize predictive power. Second, a step-wise logistic discriminant function model was estimated to select the most predictive set of variables. Third, a sequential search using automatic interaction detection (AID) was conducted to assure that no hidden interactions existed among the variables that were not discovered by previous steps. Fourth, a prediction model was estimated using a weighted least-squares procedure that optimized discriminant power. Fifth, the prediction equation was simplified to allow easy use by SFA officials. Sixth, the prediction equation was tested separately for each of the nine sampled SFAs.

The resulting error-prone profile is very simple and contains only two variables. Exhibit 8.2 presents the scoring system. An application is given one point if it reports an income within $120 a month of the free or reduced-price eligibility line. Another point is added if the reported income is within $60 of the free or reduced-price eligibility line. Finally, a point is subtracted if the applicant reports receiving food stamps. The resulting scale has values ranging from -1 to +2. Exhibit 8.3 displays the percentage of all sampled applicants receiving excess benefits by error-prone score and the percentage of the sample in each of the score categories. In each of the nine sampled

EXHIBIT 8.2: APPLICATION-BASED ERROR-PRONE PROFILE SCORING

Step		
A.	If reported income is within $120 a month of the free or reduced-price eligibility line, write '1' on line A. Otherwise write '0.'	_____(A)
B.	If reported income is within $60 a month of the free or reduced-price eligibility line, write '1' on line B. Otherwise write '0.'	_____(B)
C.	If the applicant reports receiving food stamps, write '-1' on line C. Otherwise write '0.'	_____(C)
D.	Sum lines A, B, and C, and write final score on line D.	_____(D)

EXHIBIT 8.3: APPLICATION-BASED ERROR-PRONE PROFILE

ERROR-PRONE SCORE*	PERCENTAGE RECEIVING EXCESS BENEFITS	PERCENTAGE OF TOTAL SAMPLE
-1	2 %	45 %
0	20 %	42 %
1	40 %	7 %
2	71 %	6 %

*Error prone scores were derived statistically by a weighted least squares procedure. A linear transformation was performed to preserve the relative weights, but produce whole numbers.

SFAs, the error-prone profile significantly discriminated between applicants receiving excess benefits and all other applicants.

In addition to being easy to use, this model has the following beneficial features:

- It is able to separate nearly half the applicants into a group of accurate reporters (45% of the sample received food stamps and only 2% of these food stamp recipients received excess meal benefits). Identification of accurate reporters is helpful because it prevents the waste of pursuing verification of these applications.
- Applicants who have an error-prone score of 2 (6% of the sample) are four times as likely to receive excess benefits as applicants selected randomly from the sample.

The final step in developing the application-based error-prone profile was to analyze what types of error are, and are not, detectable by the profile. The error-prone profile relies heavily on threshold income reporting. Therefore a particular concern in testing the model was to determine whether the model detects only small reporting errors made by households with actual incomes near their reported incomes. If this were the case, then the error-prone profile would fail to detect large errors made by more affluent households.

To address this issue, misreporters identified by the profile as detectable were compared with misreporters not identified as detectable by the profile on the basis of how much greater their actual income was than the income cutoff for the level of program benefits they received. The purpose of this comparison was to determine whether the error-prone profile is biased against low-income households whose actual incomes are close to the eligibility line. Detectable misreporters had median monthly incomes $230 above the maximum allowable income for benefits received. This compares with a median monthly income $255 above the maximum allowable income received by nondetectable misreporters. Thirty-four percent of detectable misreporters had actual monthly incomes within $100 of the maximum allowable for benefits received compared with 30 percent of nondetectable misreporters. The difference of 4 percent was not statistically significant. Therefore, the model does not appear to discriminate against low-income households or households whose income is only slightly above the maximum allowable for benefits received.

Summary

The in-home audit sample was used to create an application-based error-prone profile. The profile, which was designed for easy use by SFA officials, is capable of selecting a subgroup of applicants for verification that have a 70 percent probability of receiving excess benefits. The error-prone profile was successful in selecting applicants receiving excess benefits in all nine sample SFAs. Use of the error-prone profile for a six percent or smaller sample would, on the average, result in selection of applications for verification that have up to four times the probability of receiving excess benefits as applications selected at random.

9

SUMMARY AND CONCLUSIONS

The report presented findings from 741 in-home audits conducted with school meal program participants in nine SFAs.

The sample of School Food Authorities (SFAs) from which the in-home audit sample was drawn was not nationally representative, and therefore findings from the audits are not statistically generalizable to the nation as a whole. However, because all principal determinants of misreporting held true in all nine sampled SFAs, there is good reason to believe that they will also hold true in many other SFAs in the nation. Principal findings were:

- Seventeen and one-half percent of sampled households were receiving benefits in excess of those to which they were legally entitled because of misreporting of household size or income on meal benefit applications. The problem of awarding excess benefits to households on the basis of erroneous information reported on meal benefit applications was primarily a problem of misreported income, not household size.
- Underreporting of wages and pensions accounted for 93 percent of excess benefits awarded with wage income underreporting alone accounting for 84 percent.
- Households receiving excess benefits are characterized by having one or more employee adults.
- Households not receiving excess benefits are characterized by participation in other Federal low-income assistance programs such as food stamps, AFDC, General Assistance, Unemployment Compensation, and Low-Income Energy Assistance.
- During the course of the school year the eligibility status of 18 percent of the sample changed. Seven percent experienced an increase in eligibility and 11 percent experienced a decrease in eligibility. These changes in eligibility status were almost exclusively related to changes in income rather than to changes in family size. Increases in wage income were the primary determinant of decreases in eligibility status. Income increases of less than $100 a month had a low probability of reducing program eligibility.

- An error-prone profile was developed using a simple method of scoring applicants on whether the household receives food stamps and the reported income is near the eligibility cut-off points. The profile is an efficient method of selecting applications for verification that have a high probability of resulting in the award of excess benefits. Applications selected by the profile for verification have four times the likelihood of containing an error resulting in the award of excess benefits as applications selected at random.

These findings collectively suggest that quality assurance procedures to prevent fraud and abuse in the school meal program must include a strong emphasis on preventing and detecting the underreporting of wage income. In the 1982-1983 School Year IVPP will test a variety of methods of accomplishing this goal, including computer tape matches with state wage files, requiring supporting documentation at the time of application, requiring supporting documentation for a sample of applicants following application, and local third-party income checks.

Appendix A

NONRESPONSE ANALYSIS

Appendix A presents the method used to determine and correct for nonresponse bias with respect to receipt of excess benefits. The problem addressed is that results of the survey could, potentially, be very biased if households which misreport their income family size so as to receive excess benefits have a higher probability of refusing to submit to an in-home audit than households no receiving excess benefits.

Notation

R Index variable of response status R = Respondent R=Refusal

B Index variable of excess benefits B = No excess benefits
B = Excess benefits

J Index variable of group membership where groups are constructed so as to maximize the across group variance of B and minimize the within group variance.

Statistical Procedures

P(B) is to be estimated. However, because of potential nonresponse bias, $E(P(B|R)) \neq P(B)$. Therefore, P(B) was estimated indirectly by the equation:

$$P(B) = P(B|\bar{R})P(\bar{R}) + P(B|R)P(R) \qquad (1)$$

Where P(R) and $P(\bar{R})$ are the observed response rates for the survey and $P(B|\bar{R})$ is to be estimated.

A weighted-least-squares stepwise discriminate function procedure was employed to divide to survey respondents into 'J' groups which maximize across group variance on excess benefits on the basis of application variables. The 'J' groups were constructed by assigning a valve 'Q' to each household sampled (both respondent and refusals) where

$$Q = 2098 + 37AC - 315C - 239A \qquad (2)$$

and:

A is the log of reported monthly income

C is the log of the distance of reported monthly income from the free or reduced price eligibility cutting point.

The sample was divided into 12 groups (J) based on equal intervals of Q.

We make the assumption that

$$P(R|B,j) = P(R|B) \text{ and}$$

$$P(R|\bar{B},j) = P(R|\bar{B}), \qquad (3)$$

That is, the relation of R and B is constant across categories of J.

Because B and $\bar{B}$ are mutually exclusive and exhaustive categories

$$P(B|j) = 1 - P(\bar{B}|j) \qquad (4)$$

and therefore,

$$1 = \frac{1 - P(\bar{B}|j)}{P(B|j)} \qquad (5)$$

Multiply both sides by $P(R|\bar{B})/P(R|B)$ results in

$$P(R|\bar{B})/P(R|B) = \frac{P(R|\bar{B}) - P(R|\bar{B})\cdot P(\bar{B}|j)}{P(R|B)\cdot P(B|j)} \qquad (6)$$

From assumption 3;

$$P(R|\bar{B})\cdot P(\bar{B}|j) = P(R\bar{B}|j) \text{ and}$$

$$P(R|B)\cdot P(B|j) = P(RB|j) \qquad (7)$$

Substituting these values into equation 6 obtains;

$$P(R|\bar{B})/P(R|B) = \frac{P(R|B) - P(R\bar{B}|j)}{P(RB|j)} \qquad (8)$$

Solving for P(RB|j):

$$P(RB|j) = P(R|B) - \frac{P(R|B)}{P(R|\bar{B})} P(R\bar{B}|j) \qquad (9)$$

Thus, there is a linear relationship between $P(RB|j)$ and $P(R\bar{B}|j)$ that is a function of $P(R|B)$ and $P(R|\bar{B})$. This relationship can be expressed in standard notation:

$$P(RB|j) = \alpha + \beta(R\bar{B}|j) \qquad (10)$$

where:

$\alpha = P(R|B)$ and

$$\beta = - \frac{P(R|B)}{P(R|\bar{B})}$$

α and β were estimated using OLS methods and assumptions:

$$y_j = a + bx_j + e \qquad (11)$$

where:

y_j is $P(RB|j)$ and

x_j is $P(R\bar{B}|j)$

The obtained values of a and b were used to obtain estimates of $P(R|B)$ and $P(R|\bar{B})$ from equation 9:

$$\hat{P}(R|B) = a \text{ and} \qquad (12)$$

$$\hat{P}(R|\bar{B}) = - \frac{a}{b}$$

The resulting estimated response probabilities for those receiving excess benefits and those not receiving excess benefits were employed to weight the sample and thereby, reduce response bias with respect to receipt of excess benefits.

Exhibit A.1 shows weighted and unweighted results relative to program eligibility status.

EXHIBIT A.1: ELIGIBILITY STATUS BASED ON APPLICATION AND IN-HOME AUDITS: WEIGHTED AND UNWEIGHTED ESTIMATES

EFFECT	ELIGIBILITY BASED ON APPLICATION	ELIGIBILITY BASED ON IN-HOME AUDIT	WEIGHTED PERCENTAGE	UNWEIGHTED PERCENTAGE
Correct Benefits	Free	Free	67.3%	67.4%
	Reduced-price	Reduced-price	11.9%	13.5%
			79.2%	80.9%
Deficit Benefits	Reduced-price	Free	3.3%	4.3%
			3.3%	4.3%
Excess Benefits	Free	Reduced-price	8.0%	6.4%
	Free	Ineligible	4.6%	3.6%
	Reduced-price	Ineligible	4.8%	4.3%
			17.4%	14.3%

Appendix B

CROSS-VALIDATION OF IN-HOME AUDIT FINDINGS WITH NESNP DATA

An earlier stage of the Income Verification Pilot Project developed two error-prone profiles for the free and reduced price school meal programs. The initial profiles were developed using data from a survey of program participants conducted in the spring of 1980 as part of the National Evaluation of School Nutrition Programs (NESNP). These profiles were then cross-validated using data from the in-home audit sample. The results of the model cross-validation is presented in this appendix.

Two models identify characteristics of school meal program participants that discriminate between participants on the basis of likelihood of receipt of excess benefits. The profiles differ in that one includes receipt of food stamps as a predictor and the other does not. Exhibits B.1 and B.2 present the basic models. To validate the two profiles using in-home audit data, each respondent in the in-home audit sample was assigned a score (log of the odds ratio) reflecting the likelihood of receipt of excess benefits as predicted by the NESNP model. The score was then correlated with whether or not the applicant had actually received excess benefits. This resulted in an index of discriminant power.[1] For the original NESNP profile that included food stamps, the correlation was 0.46, and, for the profile that excluded receipt of food stamps, it was 0.43. In comparison, when application month data from the in-home audit were used, correlations of 0.36 for the food stamp profile and 0.27 for the model that excluded receipt of food stamps were obtained. A second pair of correlations was produced using in-home audit month Phase I data. The food stamp profile had a correlation of 0.48 and the model excluding food stamps had a correlation of 0.37. The second pair of correlations is very close to those using the NESNP data. Therefore, the profile as a whole replicates findings from the in-home audit data base. This important point should be noted. The correlations produced with in-home audit month income and family size data are much stronger than those produced with application month data. The reason for this appears to be that both the NESNP survey data and the in-home audit month income data were collected at the same time--during the spring--about nine months after the applications had been submitted to school officials for approval. Therefore the NESNP error-prone profile reflects a compounding of the effects of initial

misreporting on meal benefit applications and eligibility status change during the course of the school year.

Examination of error rates for the various error-prone groups (that is, those groups with a strong likelihood of receiving excess benefits) must be approached cautiously because the in-home audit sample size is too small to properly verify the smaller splits (groups) in the model. However, the primary splits can be verified. Exhibits B.3 and B.4 present the results of the validation of the groups. Each bar represents the proportion in each group receiving excess benefits. The two primary splits were receipt of food stamps and female adult household member in the labor force. The validation analysis of the NESNP error-prone profile has an important implication for interpreting findings from the in-home audits. The unrepresentative sample of SFAs and schools from which the in-home audit sample was drawn raises questions as to the generalizability of findings from the sample. The NESNP sample, by contrast, is nationally representative and was constructed in accord with generally accepted statistical principles. Therefore the fact that the two surveys replicate each other on principal correlates of receipt of excess meal program benefits suggests that other findings from the in-home audits may also replicate nationally.

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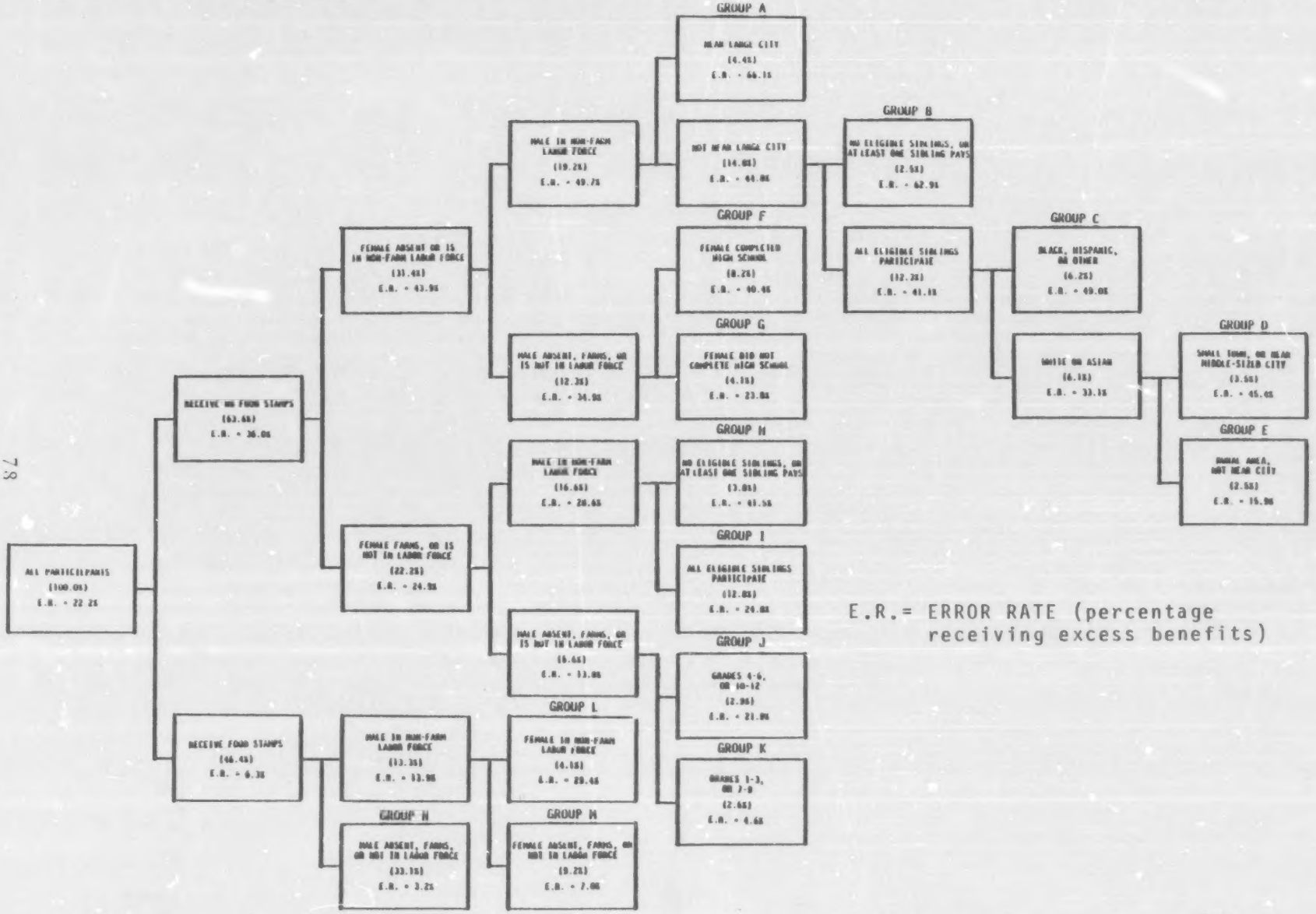
[1]All validation analyses used unweighted in-home audit data because the NESNP-based models were developed using unweighted data and also because weighting alters the interpretation of significance tests.

EXHIBIT B.1: ERROR-PRONE MODEL USING FOOD STAMP PARTICIPATION



E.R. = ERROR RATE (percentage receiving excess benefits)

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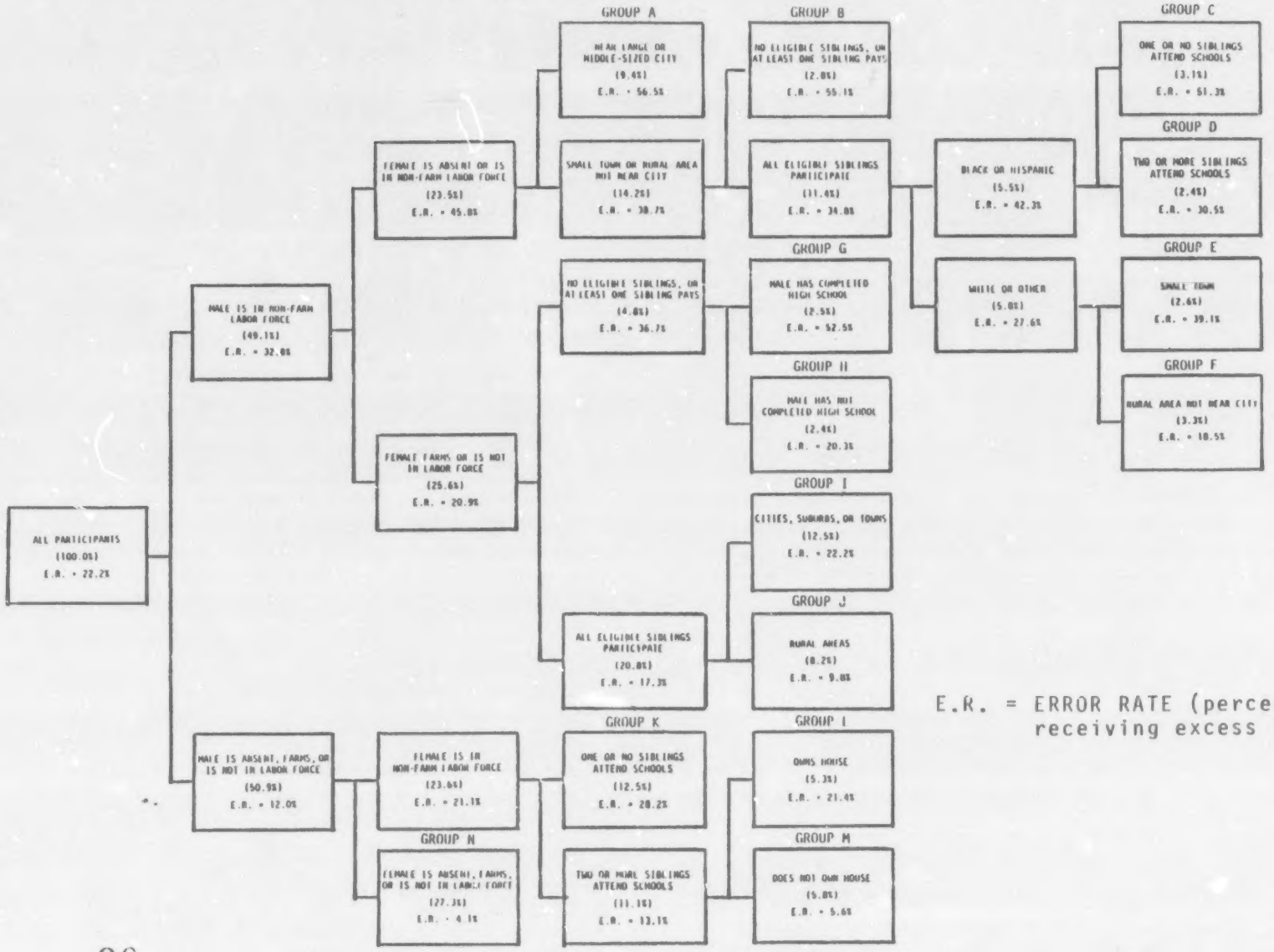
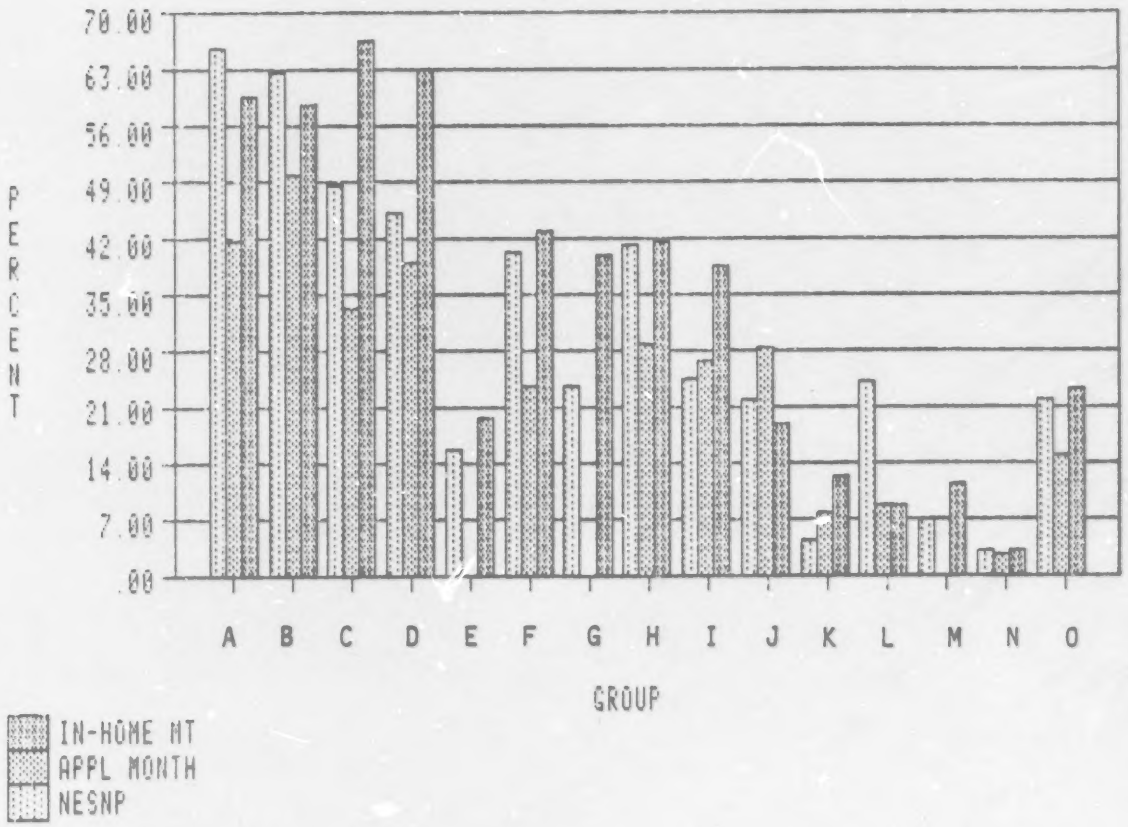
EXHIBIT B.2: ERROR-PRONE MODEL NOT USING FOOD STAMP PARTICIPATION



E.R. = ERROR RATE (percentage receiving excess benefits)

EXHIBIT B.3: PROPORTION OF ERROR FOR NESNP DEFINED GROUPS USING NESNP DATA AND IN-HOME AUDIT DATA FOR THE IN-HOME AUDIT AND APPLICATION MONTH -- FOOD STAMP MODEL



KEY: A. Participants not receiving food stamps; female householder absent or in the non-farm labor force; male householder in non-farm labor force; near a large city.

B. Participants not receiving food stamps; female householder absent or in non-farm labor force; male householder in non-farm labor force; not near a large city; and no eligible siblings or at least one sibling pays.

C. Participants not receiving food stamps; female householder absent or in non-farm labor force; male householder in non-farm labor force; not near a large city; siblings attend school, but none pays for lunch; black, Hispanic, or other.

D. Participants not receiving food stamps; female householder absent or in non-farm labor force; male householder in non-farm labor force; siblings attend school, but none pays for lunch; white or Asian; small town or near medium-sized city.

E. Participants not receiving food stamps; female householder absent or in non-farm labor force; male householder in non-farm labor force; rural area not near city; some siblings in school but all pay; white or Asian.

F. Participants not receiving food stamps; female absent or in non-farm labor force; male absent, farms, or is not in labor force; female completed high school.

G. Participants not receiving food stamps; female absent or in the non-farm labor force; male absent, farms, or is not in the labor force; female did not complete high school.

H. Participants not receiving food stamps; female farms or is not in labor force; male in non-farm labor force; no siblings attend school, or at least one sibling pays.

I. Participants receive no food stamps; female farms or is not in labor force; male in non-farm labor force; some siblings in school and all participate.

J. Participants receive no food stamps; female farms or is not in labor force; male absent, farms, or is not in labor force; students in grades 4-6 or 10-12.

K. Participants do not receive food stamps; female farms or is not in labor force; male absent; student in grades 1-3 or 7-9.

L. Participants receive food stamps and both male and female householders are in non-farm labor force.

M. Participants receive food stamps; the male is in the non-farm labor force; the female is absent, farms, or is not in the labor force.

N. Participants receive food stamps; the male householder is absent, farms, or is not in the labor force.

O. Total

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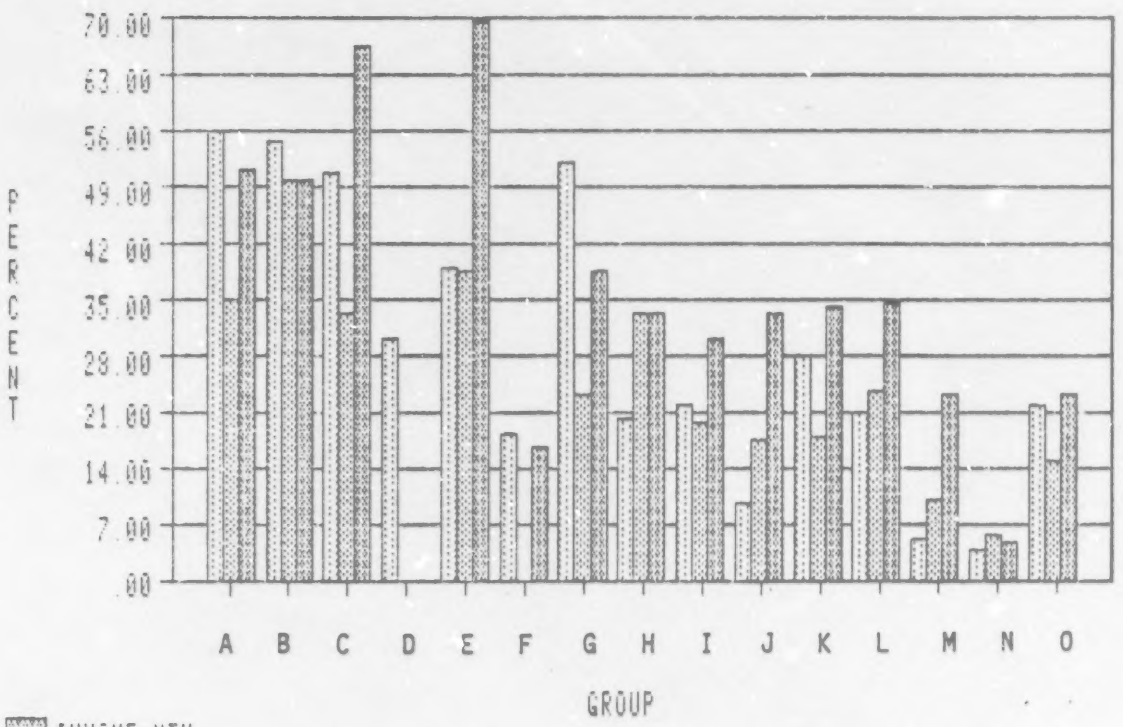
EXHIBIT B.4: PROPORTION OF ERROR FOR NESNP DEFINED GROUPS USING NESNP DATA AND IN-HOME AUDIT DATA FOR THE IN-HOME AUDIT AND APPLICATION MONTH -- NON-FOOD STAMP MODEL



KEY:

A. Male in non-farm labor force; female absent or in non-farm labor force; near large or middle-sized city.

B. Male in non-farm labor force; female absent or in non-farm labor force; small town or rural area; no eligible siblings, or at least one sibling pays.

C. Male in non-farm labor force; female absent or in non-farm labor force; small town or rural area; all eligible siblings participate; black or Hispanic; one or no siblings attend schools.

D. Male in non-farm labor force; female absent or in non-farm labor force; small town or rural area; all eligible siblings participate; black or Hispanic; two or more siblings attend schools.

E. Male in non-farm labor force; female absent or in non-farm labor force; small town or rural area; all eligible siblings participate; white or other; small town.

F. Male in non-farm labor force; female absent or in non-farm labor force; small town or rural area; all eligible siblings participate; white or other; rural area not near city.

G. Male in non-farm labor force; female farms or is not in labor force; no eligible siblings or at least one sibling pays; male has completed high school.

H. Male in non-farm labor force; female farms or is not in labor force; no eligible siblings or at least one sibling pays; male has not completed high school.

I. Male in non-farm labor force; female farms or is not in labor force; all eligible siblings participate; cities, suburbs, or towns.

J. Male in non-farm labor force; female farms or is not in labor force; all eligible siblings participate; rural areas.

K. Male absent, farms, or not in labor force; female in non-farm labor force; one or no siblings attend schools.

L. Male absent, farms, or not in labor force; female in non-farm labor force; two or more siblings attend schools; owns house.

M. Male absent, farms, or not in labor force; female in non-farm labor force; two or more siblings attend schools; does not own house.

N. Male absent, farms, or not in labor force; female absent, farms, or not in labor force.

O. Total

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APPENDIX C

LETTERS SENT TO RESPONDENTS

United States
Department of
Agriculture

Food and
Nutrition
Service

3101 Park Center Drive
Alexandria, VA 22302

May 11, 1982

The U.S. Department of Agriculture is conducting a study designed to improve the National School Lunch Program. As part of the study we are seeking the cooperation of a small number of families of children who participate in the program. Your family is one of those that has been selected. I am therefore requesting your cooperation in the study.

We are asking that you allow us to interview you in your home, at your convenience, for about 45 minutes to discuss information listed on your meal application form.

Prior to the interview, you will need to gather as many of the documents and records you have available that are listed on the attached page. Please have this information available for each adult member in your family.

This study is being conducted for the U.S. Department of Agriculture by an independent research company called Applied Management Sciences. A representative of Applied Management Sciences will call you in a few days to schedule a convenient time to visit your home and complete the interview with you.

I can assure you that any information collected will be kept strictly confidential and personally identifiable information will never be released to school or government officials. The information you provide will not affect in any way your child's eligibility to participate in the National School Lunch Program.

Your cooperation in this study is greatly appreciated.

MICHAEL J. WARGO, PH.D.
Acting Director
Office of Analysis and Evaluation

FREE AND REDUCED PRICE SCHOOL MEAL PARTICIPANT SURVEY

RESPONDENT PREPARATION CHECKLIST

As a participant in the study, it is very important that you gather the following documents and records for each adult member in your family together before the Applied Management Sciences researcher visits your home.

Use this check list as a guide in gathering your documents together for APRIL, and SEPTEMBER 1981 and as a reminder of your appointment time.

You may not have all of these documents and letters. Please gather as many as you have before the interview.

_____ Paycheck stubs or letter from employer for each member of the family employed during the month of SEPTEMBER 1981 and APRIL, 1982

_____ AFDC or General Assistance Award Letters or Check Stubs for SEPTEMBER 1981 and APRIL, 1982.

_____ Alimony or Child Support Support Agreement or copy of Court Order

_____ Federal income tax return for 1980

_____ Federal tax return for 1981

_____ Social Security Check Stub (green check) for SEPTEMBER 1981 and APRIL, 1982 or Award Letter

_____ Supplemental Security Income Check Stubs (gold check)for SEPTEMBER 1982 and APRIL, 1982 or Award Letter

_____ Unemployment Compensation Letter, or latest check stub

_____ Veterans Educational Benefits Award Notice

_____ Educational Loan Award Notice

_____ Worker's Compensation Form or check stub for SEPTEMBER 1981 and APRIL, 1982

_____ Retirement and Pension Income Award Notices

_____ Railroad Retirement Check Stub

_____ Savings Account Passbooks and/or Credit Union Statement for SEPTEMBER 1981 and APRIL, 1982

_____ Dividend Check Stubs for SEPTEMBER 1981 and APRIL, 1982

_____ Rental Income Receipt Records for SEPTEMBER 1981 and APRIL, 1982

_____ Foster Child Award Letter

_____ Other Regular Payments From Persons Not Living in the Household

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Mr./Ms. _____ of Applied Management Sciences will visit on:

_____ (day), _____ (date) at _____ (time)

If you have any questions, call:

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APPENDIX D

LIST OF VARIABLES ANALYSED IN DEVELOPMENT OF APPLICATION-BASED ERROR PRONE PROFILE

Income from wages and other earnings
Income from Social Security
Income from public assistance
Income from unemployment benefits
Income from child support or alimony
Income from pension or retirement
Other income
Family size
Total reported income
Eligibility status based on application
Difference between reported income and eligibility cutting point
Whether income was reported in round numbers (evenly divisible by 25, 50, 100)
Presence, or absence of Social Security numbers
Grade of student
Receipt of Food Stamps*
Eligibility based on in-home audit*
Difference of application and in-home audit based eligibility*

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* Data from in-home audit used. All other variables from application.